

## Repair Manual

A8 2010 ➤ , A3 2013 ➤ , Q7/ Q8 2016 ➤ ,  
A3 2004 ➤ , A8 2003 ➤ , Q3 2019 ➤ ,  
A6 2019 ➤ , Q7/ Q8 2007 ➤ , A5 2008 ➤ ,  
A7 2011 ➤ , R8 2007 ➤ , Q3 2012 ➤ ,  
A8 2018 ➤ , A5 2016 ➤ , A4 2008 ➤ ,  
Q4 e-tron 2022 ➤ , Q5 2008 ➤ ,  
Q2 2016 ➤ , Q5 2017 ➤ ,  
Q6 e-tron 2024 ➤ , A1 2011 ➤ ,  
e-tron/ Q8 e-tron 2019 ➤ , Q2 2019 ➤ ,  
R8 2015 ➤ , A6 2005 ➤ , A6 2011 ➤ ,  
A4 2015 ➤ , A7 2018 ➤ , TT 2015 ➤ ,  
A3 2021 ➤ , TT 2007 ➤ ,  
e-tron GT 2022 ➤ , A1 2018 ➤

### General Information - Paint

Edition 03.2024

## List of Workshop Manual Repair Groups

### Repair Group

00 - General, Technical Data



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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## 00 – General, Technical Data

### 1 Safety Precautions and Repair Information

(Edition 03.2024)

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⇒ ["1.1 Safety Precautions", page 1](#)

⇒ ["1.2 Repair Information", page 1](#)

#### 1.1 Safety Precautions

Pay attention to the safety precautions. Refer to ⇒ Safety Precautions and Repair Information; Rep. Gr. 00 ; Safety Precautions .

#### 1.2 Repair Information

Pay attention to the repair information. Refer to ⇒ Safety Precautions and Repair Information; Rep. Gr. 00 ; Repair Information .

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## 2 Safety Precautions

⇒ **"2.1 Safety Precautions when Painting, Vehicles with Natural Gas Drive (Not for North America Market)", page 2**

⇒ **"2.2 Safety Precautions and Other Information, Vehicles with Natural Gas Drive using "LPG" or "CNG" (Not for North America Market)", page 2**

⇒ **"2.3 Safety Precautions when Painting, Vehicles with Electric Drive", page 2**

### 2.1 Safety Precautions when Painting, Vehicles with Natural Gas Drive (Not for North America Market)

**Life threatening danger if drying temperatures are too high!**

High temperatures increase the pressure in the natural gas- or liquid petroleum gas (LPG) fuel tank. Too much pressure can cause a natural gas or liquid petroleum gas (LPG) fuel tank to burst and can therefore result in death or severe body injuries.

High temperatures activate the shut-off valve circuit breaker on natural gas fuel tanks. For LPG fuel tanks, the pressure relief valve is activated due to the pressure increase caused by the high temperature. Gas escapes from the natural gas or LPG fuel tank and may in particular ignite by sparks, causing flash fires. Death and severe body injuries are the result.

- ◆ Never expose gas-carrying components to a temperature over +60 °C (140 °F).
- ◆ When drying at over +60 °C (140 °F) in a drying oven, remove the entire natural gas or LPG fuel tank and ventilate all natural gas lines.
- ◆ When IR drying, never expose gas-carrying components of the high pressure reservoir system to a temperature over +60 °C (140 °F).

### 2.2 Safety Precautions and Other Information, Vehicles with Natural Gas Drive using "LPG" or "CNG" (Not for North America Market)

Observe the safety precautions and additional information when working on "LPG" or "CNG" vehicles:

Refer to ⇒ Gas Drive - General Information; Repair Group 00, Safety Precautions .

Refer to ⇒ Fuel Supply System - Natural Gas Engines; Repair Group 00, Safety Precautions .

Refer to ⇒ Fuel Supply System - Natural Gas Engines; Repair Group 20, Fuel Tank; Fuel Tank, Removing and Installing .

### 2.3 Safety Precautions when Painting, Vehicles with Electric Drive

**Risk of damaging the battery cells at too high of drying temperatures**

Observe the drying temperature

- ◆ Observe the maximum drying time of 45 minutes at a drying temperature of +60 °C (140 °F).

- ◆ Protect all high-voltage components from direct infrared radiation when IR drying.

**Golf 2009 e-BlueMotion**

The above mentioned drying information does not apply to the Golf MY 2009 e-BlueMotion. For this vehicle the high-voltage battery must be removed before the oven drying process.

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### 3 General Information

- ⇒ [“3.1 Factory Paint Structure”, page 4](#)
- ⇒ [“3.2 Customer Service Paint, Paint Structure”, page 6](#)
- ⇒ [“3.3 Fundamental Procedure when Processing Areas Sanded Through to Base Surface, Bare Metal”, page 10](#)
- ⇒ [“3.4 Reduced Paint Structure in Engine Compartment and Inner Hood”, page 10](#)
- ⇒ [“3.5 Repair Instructions for Underbody and Stone Chip Protection”, page 10](#)
- ⇒ [“3.6 Window Glass Flange Instruction”, page 13](#)
- ⇒ [“3.7 Adhesive Surface Pretreatment when Replacing Laser-Soldered Roofs”, page 15](#)
- ⇒ [“3.8 Fender Corrosion Repair Measures, in Wheel Housing Liner Contact Area”, page 16](#)
- ⇒ [“3.9 Fold Corrosion Servicing Notes”, page 17](#)
- ⇒ [“3.10 Corrosion Protection for Body, Attached and Welded Parts”, page 19](#)
- ⇒ [“3.11 Parking Aid Sensor Paint”, page 21](#)
- ⇒ [“3.12 Adaptive Cruise Control \(ACC\)”, page 22](#)
- ⇒ [“3.13 Bumper Cover Painting Instructions in Lane Change Assistance Control Module and Front Corner Radar Area”, page 22](#)
- ⇒ [“3.14 Bumper Cover Painting Instructions in Lane Change Assistance Control Module and Front Corner Radar Area”, page 23](#)
- ⇒ [“3.15 Painting, Vehicles with Natural Gas Drive \(Not for North America Market\)”, page 26](#)
- ⇒ [“3.16 High-Voltage Vehicles, Painting”, page 26](#)
- ⇒ [“3.17 Paint Levels, Systematics”, page 27](#)
- ⇒ [“3.18 Paint Layers - Overview and Steps”, page 28](#)

#### 3.1 Factory Paint Structure

- ⇒ [“3.1.1 Layer Thicknesses”, page 4](#)
- ⇒ [“3.1.2 Structure of Normal Paint, Conventional”, page 5](#)
- ⇒ [“3.1.3 Structure of Normal Paint, Water-Based Paint”, page 5](#)
- ⇒ [“3.1.4 Structure of a metallic and pearl color paint system, water-based paint”, page 5](#)
- ⇒ [“3.1.5 Structure of Two Layer Finishes, Conventional”, page 5](#)
- ⇒ [“3.1.6 Structure of a 2010 paint process paint system, water-based paint”, page 6](#)
- ⇒ [“3.1.7 Structure of Three Layer Paint, Water-Based Paint”, page 6](#)

##### 3.1.1 Layer Thicknesses

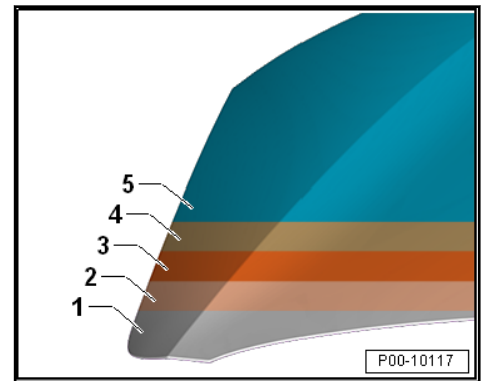
- ◆ The approximate specification for the layer thickness can vary depending on the color and illustrates the differences in vertical and horizontal surfaces.

- ◆ The specifications can be exceeded on individual vehicles when painting a second time or multiple times.

### 3.1.2 Structure of Normal Paint, Conventional

- 1 - Steel Panel
- 2 - Zinc Phosphate Coating
- 3 - Electrophoretic Dip Primer
- 4 - Intermediate Filler
- 5 - Two-Part Solid Top Coat

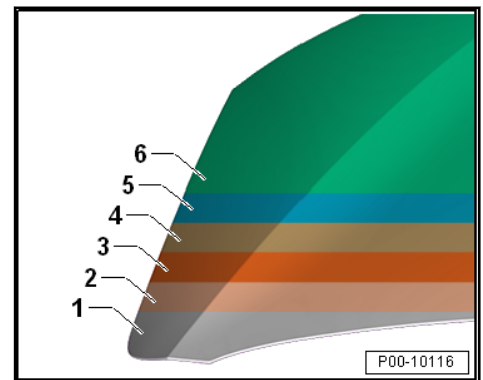
Approximately 80 to 120 µm thick



### 3.1.3 Structure of Normal Paint, Water-Based Paint

- 1 - Steel Panel
- 2 - Zinc Phosphate Coating
- 3 - Cathodic Electrophoretic Painting
- 4 - Water-Based Filler
- 5 - Water-Based Paint
- 6 - Two-Part Clear Coat

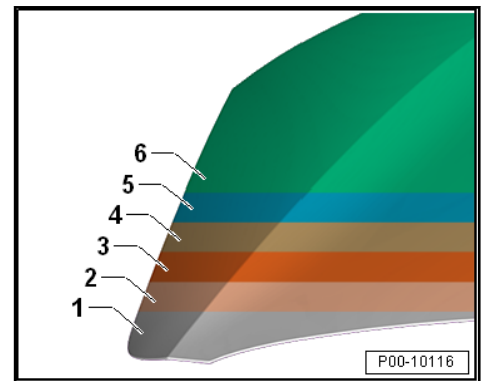
Approximately 80 to 130 µm thick



### 3.1.4 Structure of a metallic and pearl color paint system, water-based paint

- 1 - Steel Panel
- 2 - Zinc Phosphate Coating
- 3 - Cathodic Electrophoretic Painting
- 4 - Water-Based Filler
- 5 - Water-Based Metallic/Pearl Color Base Coat
- 6 - Two-Part Clear Coat

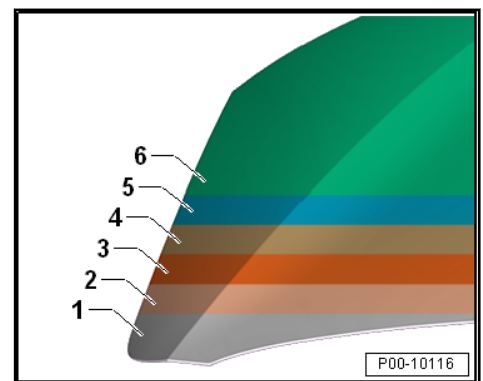
Approximately 80 to 130 µm thick



### 3.1.5 Structure of Two Layer Finishes, Conventional

- 1 - Steel Panel
- 2 - Zinc Phosphate Coating
- 3 - Cathodic Electrophoretic Painting
- 4 - Intermediate Filler
- 5 - Solid Top Coat
- 6 - Two-Part Clear Coat

Approximately 100 µm thick

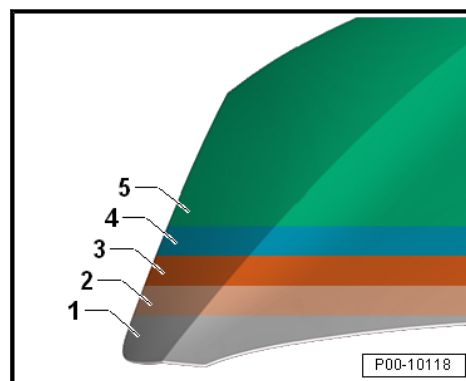


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### 3.1.6 Structure of a 2010 paint process paint system, water-based paint

- 1 - Steel Panel
- 2 - Zinc Phosphate Coating
- 3 - Cathodic Electrophoretic Painting
- 4 - Water-Based Paint - Functional Coating
- 5 - Two-Part Clear Coat

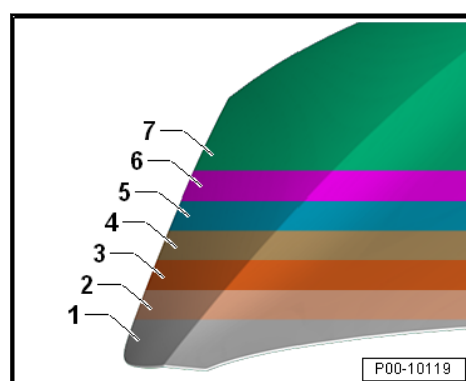
Approximately 80 to 120 µm thick



### 3.1.7 Structure of Three Layer Paint, Water-Based Paint

- 1 - Steel Panel
- 2 - Zinc Phosphate Coating
- 3 - Cathodic Electrophoretic Painting
- 4 - Water-Based Filler
- 5 - Water-Based Paint - Pigmented Basic Color
- 6 - Water-Based Paint - Effect Coating
- 7 - Two-Part Clear Coat

Approximately 80 to 140 µm thick



## 3.2 Customer Service Paint, Paint Structure

⇒ ["3.2.1 Base Paint Structure", page 6](#)

⇒ ["3.2.2 Matte Effect Painting Paint Structure", page 9](#)

### 3.2.1 Base Paint Structure

#### Galvanized sheet metal on both sides

Only here do the cathodic protection and the zinc coating barrier effect work optimally together. The cut edges that are poorly protected with paint (thinning edges) are additionally protected.

Make sure that:

#### Condition

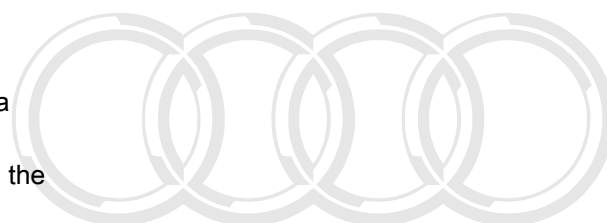
- All metal edges are properly deburred when performing a body repair.
- The zinc and cathodic layer is completely present on the interior surfaces that are not painted.
- The inner weld flanges and the sanded-through areas are reworked with Inox Spray D 007 600 A1 or zinc spray D 007 500 A2.

#### Smoothing Work

Pay attention to different base surface requirements.

#### Condition

- The metal filling paste requires a base surface that is bare metal and is as coarse as possible. The best adhesion



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and anti-corrosion properties can be achieved by using the Pneumatic Brush Grinder Set - VAS 6446- .

- Spray and polyester filler paste acts as a hydrophilic. That means they absorb moisture like a sponge. Therefore bare metal base surfaces must be insulated. Use two-part wash primer LHV 043 000 A2 and then the two-part HS-performance filler as insulation before the filler paste.

Product information:

- ◆ Refer to ➤ [“3.8.1 Fender Corrosion Repair Measures, in Wheel Housing Liner Contact Area”, page 16](#) .

### Primer

The primer is the most important component of the corrosion protection system, because it prevents water and oxygen from accessing the metal surface. Original replacement parts are normally coated with a black or gray cataphoretic dip coating (CDC). The primer type is dependent on the area of application.

Condition

- Cataphoretic primer is not UV and acid resistant. Body components that are in the areas that are at risk, such as the front end, fenders and wheel housings, must then also be coated from the inside with a spray of base coat and clear coat. On inner-lying body surfaces, such as on the roof or side panels with a complete trim panel, it is sufficient if cracks and bare surfaces are sealed with glass/paint primer. In case of doubt, the production status applies.
- When body parts that have been worked on are delivered, watch out for any rust film. Cleaning or intermediate sanding may be necessary.
- Sanded-through areas or weld seams must be recoated as quickly as possible with corrosion protection.
- ◆ Areas sanded through to the base surface (bare metal) and that have had corrosion repair are to be primed with Two-Part Wash Primer LHV 043 000 A2 and then filled with Two-Part HS Performance Filler.
- ◆ Make sure that the Two-Part Wash Primer LHV 043 000 A2 is always mixed again before application, and that a dry coat thickness of at least 10 to 12 µm has been reached.

Product information:

- ◆ Refer to ➤ [“4.2 Primer Metal”, page 61](#) .
- ◆ Refer to ➤ [“4.3 Plastic Primer”, page 80](#) .

### Filler

The filler contributes to corrosion protection to a lesser extent. A suitable filler is, however, essential in service.

Tasks:

- ◆ Filler protects the body from stone impact. Therefore pay attention to the appropriate layer thickness in the stone chip protection area.
- ◆ Filler serves as surface preparation. Sanding scratches can be smoothed out.
- ◆ Colored filler improves the coverage of colors with poor covering properties.

Product information:

- ◆ Refer to ➤ [“4.4 Filler”, page 89](#) .



## PVC Sealed Seams and Underbody Protection

### Condition

- The seam sealing is to be restored according to its original conditions in appearance and layer thickness.
- Sealing seams near attachments to be installed must be applied smoothly in order to avoid damage and malfunctions.
- Water drain holes must stay clear.
- All threaded pins and weld nuts with M-threads, as well as all other pins and contact surfaces for the assembly must be functional after the sealant application.
- The sealing material cannot be applied on uncoated sheet metal, but rather on filled surfaces.

To prevent any water from entering the flange, the notch is sealed with paste-like, solvent-free PVC in critical areas on the body. A PVC coating of different thickness is sprayed on specified areas on the underbody and in the wheel housings to protect against stone impact and engine humming.

### Condition

- After a corrosion repair, insulate the bare metallic base surface with Two-Part Wash Primer LHV 043 000 A2 and then fill with Two-Part HS Performance Filler.
- For the underbody protection, pay attention to the specified layer thickness.

### Product information:

- ◆ Refer to ➤ [“4.13 Underbody Protection”, page 264](#) .
- ◆ Refer to ➤ [“4.13.2 Stone Chip Protection AKR 311 KD1 05”, page 269](#) .
- ◆ Refer to ➤ [“4.13.3 Stone Chip Protection AKR 311 KD1 10”, page 272](#) .
- ◆ Refer to ➤ [“4.14 Sealant Materials”, page 287](#) .

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## Base Paint

The decorative application is the main consideration for base paint. This contributes to corrosion protection to a lesser extent.

Depending on the pigment content, the colors have different coverage. Pay attention to manufacturer information.

### Data sheets:

- ◆ Refer to ➤ [“4.5 Two-Part Top Coat”, page 133](#) .
- ◆ Refer to ➤ [“4.6 AquaPlus Solid Top Coats”, page 141](#) .
- ◆ Refer to ➤ [“4.7 AquaPremium, Top Coats”, page 167](#) .
- ◆ Refer to ➤ [“4.8.1 Ready-Mix Top Coats”, page 203](#) .

## Clear Coat

For the clear coat, the decorative application is the prime consideration. The clear coat also contributes to corrosion protection to a lesser extent. The clear coat protects the top coat/base paint against UV radiation and environmental pollution such as acidic bird droppings.

### Product information:

- ◆ Refer to ➤ [“4.9 Clear Coats”, page 204](#) .

## Conservation wax

The conservation wax/cavity sealants play a decisive role for corrosion protection. Depending on the area of application, different materials are available in service. The exceptional protective effects of these materials is based on the following characteristics:

- ◆ hydrophobic, water repellent
- ◆ good adhesion
- ◆ no rust formation
- ◆ water vapor permeability approximately 1,500 times lower than with a paint coating of the same thickness

Product information:

- ◆ Refer to ➔ [“4.12 Preservation”, page 260](#) .
- ◆ Refer to ➔ [“4.13 Underbody Protection”, page 264](#) .

## 3.2.2 Matte Effect Painting Paint Structure

### Technology

Vehicles with matte effect usually only have finishes with a matted clear coat application. The application can take place directly on the base paint or on an existing clear coat.

There is a risk of cloudiness from too dry of application due to uneven drying or due to unabsorbed spray mist. For this reason large surfaces should be painted early in the morning. It could be the case that the work order must be moved a few days.

### Base paint color structure

Due to the matte structure of the clear coat, the color and the pigmentation effect of the base paint cannot be clearly allocated. For this reason it is recommended, to prepare two to three versions of the base paint in the foreground of the sheet metal.

### Matte clear coat color structure

Despite the gloss level measurement, three different matte levels should be applied.

It is recommended to use a Gloss Level Measuring Device .

### Application

To obtain a homogeneous material effect, the following is recommended:

Condition

- To reach the determined matte level, the clear coat must be mixed using a scale.
- The spraying distance to the object is slightly larger than the standard application to use the full the atomization of the spray mist.
- It is advisable to apply both spray applications in cross coats on horizontal replacement parts in order to prevent streaking.
- Pay attention that there is even overlap of the spray passes and that enough wet spray film is applied.
- When applying to large components, the overlapping area of the second spray application must not lay in the overlap zone of the first spray application and should instead be moved.

- If possible, a complete respray should be divided into sections. This means that the vehicle body and attachments are painted separately to prevent overlapping areas and spray mist.
- Keep in mind that the matting can change over time.

**Applies in principle:****Condition**

- Spot repair is not required.
- Air drying is not recommended.
- In the regulation a base painting is required.
- Glossy spots can only be eliminated by new painting in the regulation

**Avoid dust inclusions**

Because matte clear coats cannot be reworked, pay attention to the following notes in order to prevent dust inclusions:

**Condition**

- The vehicle must be kept in a completely clean condition from the outside. Perform an underbody wash or the use of a steam cleaner in the foreground.
- The paint booths should also be completely clean. A filter change shortly beforehand may be preferred. But then only as the second or third work order, because a lot of dust is stirred up right after a filter replacement.
- Scrub the components thoroughly after sanding and clean with silicone remover.
- Sufficiently tape off the vehicle. Cover the painting stand.
- Before painting, clean all components to be painted again, using the Duster - VAS 6177- .

### 3.3 Fundamental Procedure when Processing Areas Sanded Through to Base Surface, Bare Metal

**Condition**

- Areas sanded through to the base surface are to be primed with Two-Part Wash Primer LHV 043 000 A2 and then filled with Two-Part HS Performance Filler.

### 3.4 Reduced Paint Structure in Engine Compartment and Inner Hood

**Condition**

- The paintwork in the engine compartment and the inner hood may differ from the paint structure and color on the exterior paintwork. This variation is production-related and should not be deemed defective. Recreate the original state.

### 3.5 Repair Instructions for Underbody and Stone Chip Protection

**Condition**

- The underbody and stone chip protection structure must be restored back to its original layer thickness and appearance during repairs.

- Water drain holes must stay clear.
- All threaded pins and weld nuts with M-threads, as well as all other pins and contact surfaces for the assembly must be functional after the sealant application.

### Damage caused by an accident - part replacement

- Clean the new part with silicone remover, long.
- Abrade the factory paint with a sanding pad.
- Clean again using silicone remover, long.
- Apply Two-Part Wash Primer LHV 043 000 A2 to sanded through areas.
- Let dry while paying attention to the drying time.
- Fill, using the Two-Part HS Performance Filler.
- Let dry while paying attention to the drying time.
- Sand the dried filler using a rotary sander, with P400 to P500 dry sanding paper and dust extraction. At the same time avoid sanding through.
- Clean the surface with silicone remover for a long time.
- Apply a suitable stone chip protection. Refer to ➤ [“4.13.2 Stone Chip Protection AKR 311 KD1 05”, page 269](#) or Refer to ➤ [“4.13.3 Stone Chip Protection AKR 311 KD1 10”, page 272](#).
- Let dry while paying attention to the drying time.
- If necessary, slightly rework/smoothen the structure.
- Clean the base surface with Silicone Remover, Diluted - LSW 019 000 A5.
- Prepare the paint structure with top, base and clear coats.

### Damage caused by an accident, repair

- Always clean damaged components/surfaces.
- Remove the underbody protection using the Pneumatic Brush Grinder Set - VAS 6446A- .
- Remove the damaged area and sand down to the bare metal.
- Remove potential corrosion using the Pneumatic Brush Grinder Set - VAS 6446- . At the same time finely sand the overlapping areas.
- Clean the base surface with silicone remover for a long time.
- Apply Two-Part Wash Primer LHV 043 000 A2.
- Let dry while paying attention to the drying time.
- Fill, using the Two-Part HS Performance Filler.
- Let dry while paying attention to the drying time.
- Sand the filler.
- Clean the base surface with silicone remover for a long time.

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- Apply suitable filling paste.
  - Sand the scraper using P80 to P240 sanding paper. At the same time sand the overlapping areas generously.
  - Clean the base surface with silicone remover for a long time.
  - Apply Two-Part Wash Primer LHV 043 000 A2.
  - Fill, using the Two-Part HS Performance Filler.
  - Let dry while paying attention to the drying time.
  - Sand the dried filler in the stone chip protection area using P400 to P500 sanding paper. At the same time avoid sanding through.
  - Clean the surface with silicone remover for a long time.
  - Apply a suitable stone chip protection. Refer to ⇒ [“4.13.2 Stone Chip Protection AKR 311 KD1 05”, page 269](#) or Refer to ⇒ [“4.13.3 Stone Chip Protection AKR 311 KD1 10”, page 272](#) .
  - Let dry while paying attention to the drying time.
  - If necessary, slightly rework/smoothen the structure.
  - Sand the dried filler surface with sandpaper (P400 to P500).
  - Clean the base surface with Silicone Remover, Diluted - LSW 019 000 A5.
  - Prepare the paint structure with top, base and clear coats.
- 

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### Cracks in the stone chip protection

Repairs should be performed according to the description. Refer to ⇒ Damage caused by an accident (repair) .

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### Damage caused by stone impact, for example gravel, grit, etc.

- Clean the damaged areas thoroughly.
  - Sand the damaged surfaces with sandpaper. If damage is deep, dry-sand with P120 to P240 sandpaper.
  - Clean the base surface with silicone remover for a long time.
  - Apply Two-Part Wash Primer LHV 043 000 A2 to sanded through areas.
  - Let dry while paying attention to the drying time.
  - Fill, using the Two-Part HS Performance Filler.
  - Let dry while paying attention to the drying time.
  - Sand the dried filler, using P400 to P500 sanding paper. At the same time avoid sanding through.
  - Clean the base surface with silicone remover for a long time.
  - Apply a suitable stone chip protection. Refer to ⇒ [“4.13.2 Stone Chip Protection AKR 311 KD1 05”, page 269](#) or Refer to ⇒ [“4.13.3 Stone Chip Protection AKR 311 KD1 10”, page 272](#) .
  - Let dry while paying attention to the drying time.
-

- If necessary, slightly rework/smoothen the structure.
- Clean the area with Silicone Remover, Diluted - LSW 019 000 A5.
- Prepare the paint structure with top, base and clear coats.

### 3.6 Window Glass Flange Instruction

⇒ [“3.6.1 Window Glass Flange Instruction”, page 13](#)

⇒ [“3.6.2 Window Glass Flange Instructions, New Part and Component without Damage in Window Glass Flange”, page 13](#)

⇒ [“3.6.3 Window Glass Flange Instruction - Component with Damage in Window Glass Flange, Recognizable in Base”, page 14](#)

#### 3.6.1 Window Glass Flange Instruction

Condition

- The window glass flange may not be painted.
- If a window opening must be repainted, tape off all around the adhesive surface on the window glass flange beforehand.

#### 3.6.2 Window Glass Flange Instructions, New Part and Component without Damage in Window Glass Flange

The window glass flange may not be painted.

**Make sure that the anti-corrosion material is thoroughly dried before installing windows. It is recommended to use a hot air blower or to wait the correspondingly longer wait time.**

#### Continuation for all vehicles

- The corrosion protection under the window glass must be intact. Possible damage to the window glass flange caused by disassembly tools must be repaired before applying adhesive.
- Thoroughly clean the window glass flange with silicone remover.
- Sand the cataphoretic dip coating (CDC) primer with a red sanding pad.
- Apply two-part wash primer.
- Apply Two-Part HS Performance Filler.

- Pay attention to the drying time of the Two-Part HS Performance Filler at +60 °C (140 °F) object temperature according to the manufacturer's information.

Condition

- 60 to 150 µm: 15 to 20 minutes

- Refer to ➤ [“4.17.19 Two-part wash primer”, page 371](#) for more information.
- Refer to ➤ [“4.4.2 Two-Part HS Performance Filler”, page 97](#) for more information.
- Alternatively, Two-Part HS Wet-on-Wet Filler can also be used. Pay attention this information. Refer to ➤ [“4.4.3 Two-Part HS Wet-on-Wet Filler”, page 108](#) .
- Apply the required window adhesive onto the filler layer.
- Before applying the window primer, the adhesion area must be sanded with sanding fleece. Lightly dry sand the filler, using P400 to P500 sandpaper. At the same time avoid sanding through.
- Clean with silicone remover.
- Tape off the adhesive surface on the window glass flange using suitable heat-resistant and solvent-resistant adhesive tape. This prevents adhesive residue.
- After the last spray application, remove the adhesive tape from the window glass flange.

### 3.6.3 Window Glass Flange Instruction - Component with Damage in Window Glass Flange, Recognizable in Base

The window glass flange may not be painted.

---

**Make sure that the anti-corrosion material is thoroughly dried before installing windows. It is recommended to use a hot air blower or to wait the correspondingly longer wait time.**

---

#### Continuation for all vehicles

- The corrosion protection under the window glass must be intact. Possible damage to the window glass flange caused by disassembly tools must be repaired before applying adhesive.
- Thoroughly clean the window glass flange with silicone remover.
- Dry-sand the damaged area with P100 sandpaper.
- Clean the base surface with silicone remover.
- Apply Two-Part Wash Primer LHV 043 000 A2 to the damaged area.
- Apply Two-Part HS Performance Filler after a drying time of 10 minutes at 20 °C (68 °F) object temperature.
- Pay attention to the drying time of the Two-Part HS Performance Filler at +60 °C (140 °F) object temperature according to the manufacturer's information.

Condition

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- 60 to 150 µm: 15 to 20 minutes

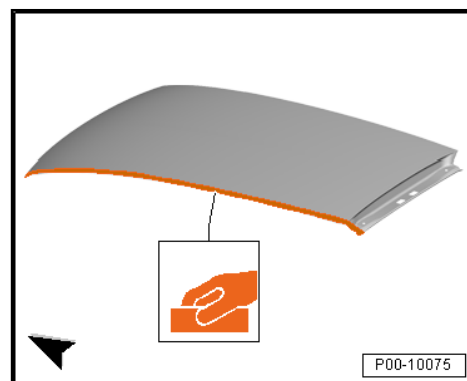
- Refer to ⇒ [“4.17.19 Two-part wash primer”, page 371](#) for more information.
- Refer to ⇒ [“4.4.2 Two-Part HS Performance Filler”, page 97](#) for more information.
- Alternatively, Two-Part HS Wet-on-Wet Filler can also be used. Pay attention this information. Refer to ⇒ [“4.4.3 Two-Part HS Wet-on-Wet Filler”, page 108](#) .
- Lightly dry sand the filler, using P400 to P500 sandpaper. At the same time avoid sanding through.
- Clean with silicone remover.
- Tape off the adhesive surface on the window glass flange using suitable heat-resistant and solvent-resistant adhesive tape. This prevents adhesive residue.
- After the last spray application, remove the adhesive tape from the window glass flange.

### 3.7 Adhesive Surface Pretreatment when Replacing Laser-Soldered Roofs

⇒ [“3.7.1 Adhesive Surface Pretreatment when Replacing Laser-Soldered Roofs”, page 15](#)

#### 3.7.1 Adhesive Surface Pretreatment when Replacing Laser-Soldered Roofs

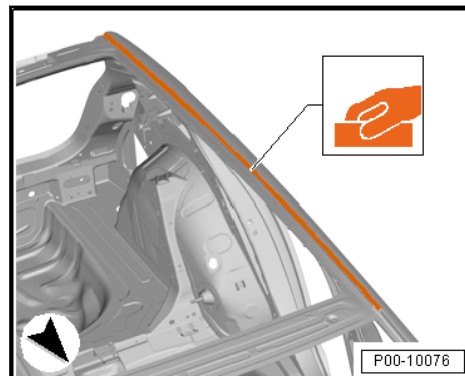
- Dry sand the cataphoretic primer on the roof adhesive surface down to the bare metal using P180 sandpaper.



- Dry sand the roof pillar adhesive surface down to the bare metal using P180 sandpaper.



- Prime the sanded-through areas outside of the body adhesives with Two-Part Wash Primer LHV 043 000 A2 and then fill with Two-Part HS Performance Filler.



- Clean the adhesive surface with silicone remover.



- Restore further paint structure according to manufacturer information.

### 3.8 Fender Corrosion Repair Measures, in Wheel Housing Liner Contact Area

⇒ [“3.8.1 Fender Corrosion Repair Measures, in Wheel Housing Liner Contact Area”, page 16](#)

#### 3.8.1 Fender Corrosion Repair Measures, in Wheel Housing Liner Contact Area

##### Tip

The corrosion protection in the fender seam must be applied on all replacement parts, on which an attached seal is not already present.

The additional seal is supposed to prevent “chafing” in the fender wheel housing liner.

- Apply filler on the inside and outside of the fender.

- Once the filler has dried, apply and spread the Sealing Material D 511 500 A2 in the wheel housing liner contact area, fender seam.

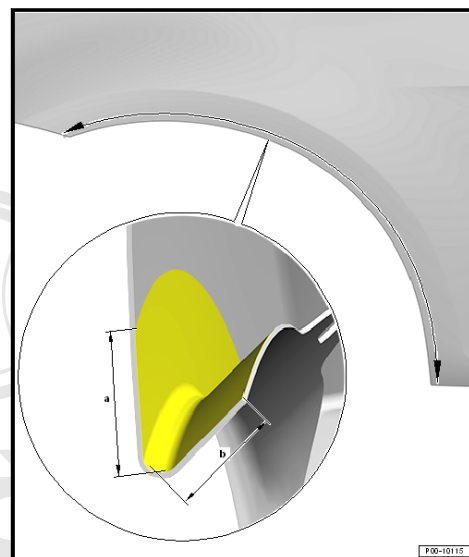
- Dimension -a- = 20 mm

Height of the seal

- Dimension -b- = 10 mm

Width of the seal

Dimension -b- can vary, because the fender has different folded edge widths. Always make sure that the entire folded edge is sealed.



### 3.9 Fold Corrosion Servicing Notes

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Corrosion at folded edges shown as examples at the hood, door or also rear lid.

- Remove corrosion using the Pneumatic Brush Grinder Set - VAS 6446- or Brush Grinder Set - VAS 6776- .
- Sand the overlapping areas with P360 to P400 sandpaper.
- Clean the base surface with silicone remover.
- After a corrosion repair and before sealing, insulate the base surface with Two-Part Wash Primer LHV 043 000 A2 and then fill with Two-Part HS Performance Filler.
- After the filler has dried, the filled area must be dry sanded with P400- P500. While doing so, make sure to avoid “sanding through”.
- Clean the sanded areas with silicone remover.
- After the filler has dried and has been sanded, the metal edges in the fold area must be thinly sealed with a fine seam sealant. Refer to [4.14 Sealant Materials](#), page 287 .
- Bring fine seam sealing close to the original state. Refer to [Paint](#) .
- The seam sealings are to be restored according to their original condition in appearance and layer thicknesses.
- Spread the seam seals near attachments to be installed smoothly in order to avoid damage and malfunctions.

- Clean the listed areas with seam sealant if they are dirty.

#### Condition

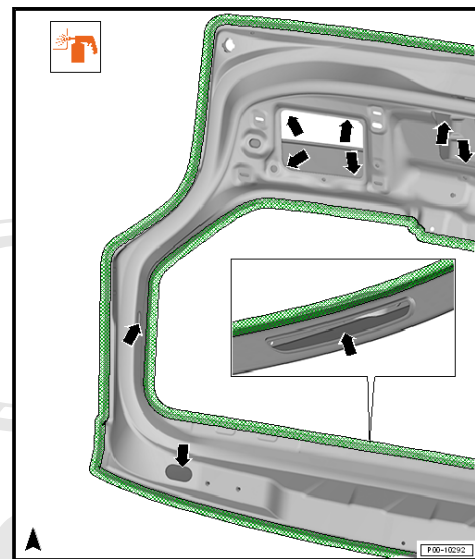
- Water drain holes must stay clear.
- All threaded pins and weld nuts with M-threads, as well as all other pins and contact surfaces for the assembly must be functional after the sealant application.
- The sealant cannot be applied on uncoated sheet metal, but rather on filled surfaces.

- Restore further paint structure according to manufacturer information.
- Apply protective material in the cavities around the fold area using the Suction Feed Spray Gun - V.A.G 1538- .

#### Tip

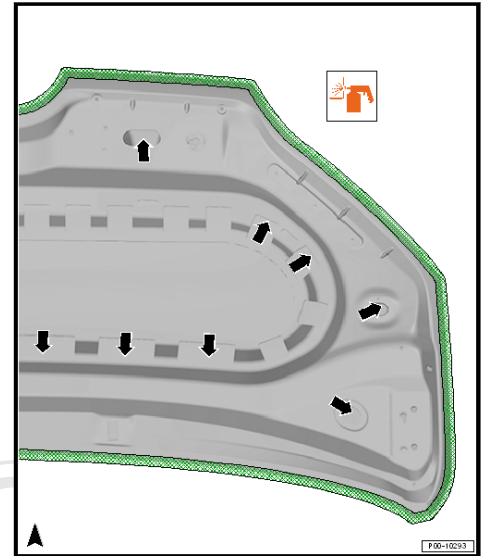
Servicing is only efficient if the fold area has been sealed airtight from the inside, so that no moisture can enter.

#### Cavity sealant area example on rear lid

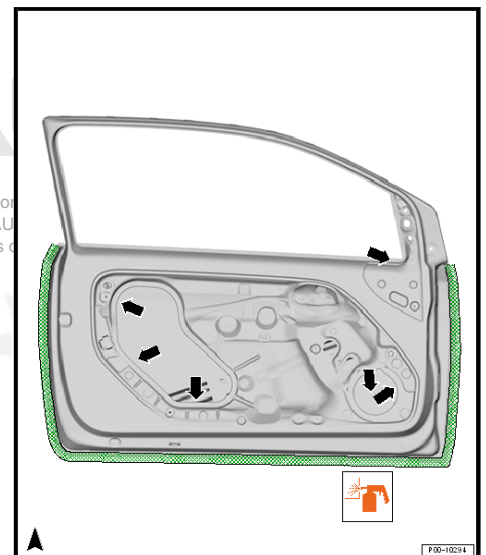


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### Cavity sealant area example on hood



### Cavity sealant area example on a door



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## 3.10 Corrosion Protection for Body, Attached and Welded Parts

Refer to ⇒ [“3.11 Parking Aid Sensor Paint”, page 21](#) .

Refer to ⇒ [“3.13.1 Bumper Cover Painting Instructions in Lane Change Assistance Control Module and Front Corner Radar Area”, page 22](#) .

### Warranty claims

Warranty claims cannot be made valid, if:

- ◆ Damage to body and paint is not properly eliminated in time according to manufacturer specifications.
- ◆ Rust damage is caused by not using original replacement parts and original materials during body repair and/or not treating according to manufacturer specifications.
- ◆ Paint errors occur due to the fault of the technician, for example lack of care, or collision damage that was not correctly repaired according to manufacturer specifications.



## Fenders

- ◆ The fender must be completely coated on the inside. Add one wet-on-wet spray application.
- ◆ For vehicles with wheel housing liners at the wheel arch, apply an additional chafe protection. Refer to [Refer to ⇒ "3.8.1 Fender Corrosion Repair Measures, in Wheel Housing Liner Contact Area", page 16](#) . The original fenders often already have sealing material applied to them.

Before installing, seal the inner sides of the wheel housing and the fillet plate with Cavity Sealant D 330 KD 1 A2.

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## Doors

- ◆ Doors also need to be completely coated from the inside.
- ◆ Seal the door insides with cavity sealant.

## Covers/Lids

- ◆ To be worked on like fenders and doors.
- ◆ Seal the insides with cavity sealant.

## Ball pins

- ◆ Recreate the paint structure in sanded-through areas near the ball pin.
- ◆ Paint the ball pin.

## Welded parts

All welded parts except the roof are to be completely primed and filled on the inside. Visible inner surfaces must be coated with a wet-on-wet process spray application and clear coat spray application. If necessary, perform this before welding.

Uncoated welding flanges or damaged parts to be welded must be coated with Inox spray D 007 600 A1 or Zinc spray D 007 500 A2 first. After painting, the cavities must be completely protected with cavity sealant.

When it is required, perform sealing work only after applying the specified paint structure to guarantee optimum corrosion protection.

Coat all parts that form cavities, such as pillars, braces, side panels, etc., with cavity sealant.

All parts in series production that are coated with noise-dampening or stone chip protection material, for example the wheel housing, floor panel, front/rear cross panels or outer side sill, need to be coated as follows:

- ◆ Coat the wheel housings and underbody with spray seam sealant.
- ◆ Construct large gaps or raised layer thicknesses with base material.
- ◆ Sill panel region, lower side panel, rear cross panel corners with stone chip protection

## Materials

- ◆ Underbody Protection Wax D 316 D38 A2
- ◆ Refer to [⇒ "4.12 Preservation", page 260](#) .

### 3.11 Parking Aid Sensor Paint

#### Conditions

##### Condition

- The Parking Aid Sensor -arrow- may not be covered with foil.
- The following parameters must be met when painting to avoid malfunctions in the Parking Aid Sensor .

#### New Part, Painting

##### Condition

- Maximum coat thickness 125 µm; the coat thickness must always be measured after painting.
- Maximum curing temperature: 1 hour at 90 °C (194 °F)

#### Old Part, Painting

##### Condition

- Only remove paint/sand down to the primer. The minimum coat thickness of 5 - 10 µm coating must be maintained.
- Maximum coat thickness 125 µm; the coat thickness must always be measured after painting.
- Maximum curing temperature: 1 hour at 90 °C (194 °F)

#### Electric Conductivity

##### Condition

- Paint or paint spray must not get into connectors.
- Pin contact must be ensured after painting.

#### Cleaning

##### Condition

- Dipping in cleaning solution without taping off the connector pins beforehand is prohibited.

#### Function Test

##### Condition

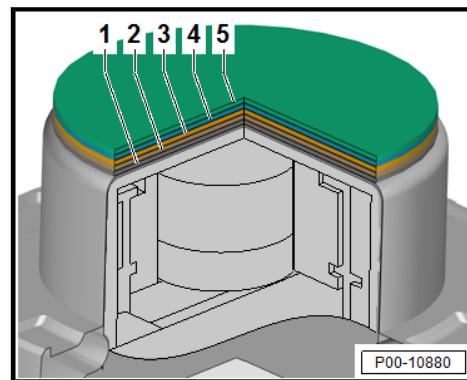
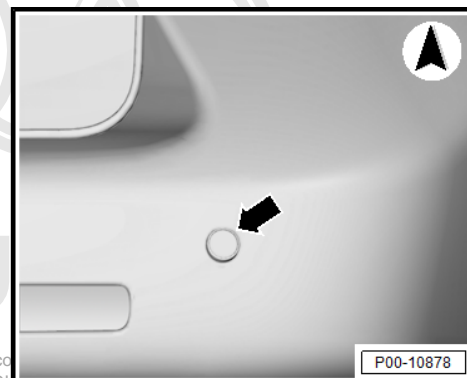
- Connect the Vehicle Diagnostic Tester and check the function. Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97 ; Wiring, Vehicle Diagnostic Tester .

#### Paint Structure and Coat Thickness, Repairing

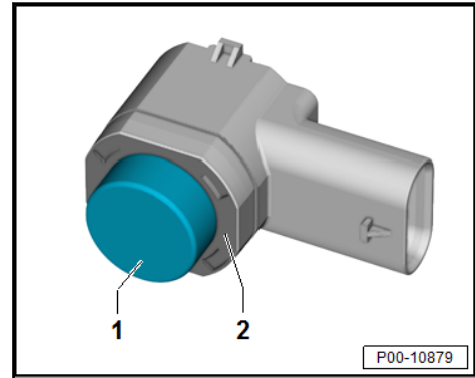
- 1 - Primed New Part with Replacement Part Primer Coat: 2 - 10 µm
- 2 - Filler: 30 - 40 µm
- 3 - Solid Base Coat: 10 - 20 µm
- 4 - Metallic/Pearlescent Base Coat: 20 - 25 µm
- 5 - Clear Coat: 35 - 50 µm

Additionally, pay attention to ⇒ Paint; Rep. Gr. 00 ; Contrasting Colors .

#### Paint Area



- 1 - The paint area -1- on the sensor is the front and side surface of the membrane. The side surfaces are painted a minimum 3 mm to maximum 4 mm from the front side of the membrane toward the rear.
- 2 - No paint is permitted in this area.



### 3.12 Adaptive Cruise Control (ACC)

#### Condition

All changes to surfaces such as additional painting, bonding and other supplementary applied objects can cause malfunctions.

- Do not paint vehicles with an adaptive cruise control (ACC) trim during repair painting or when replacing. The ACC system is located behind this section therefore a coat of paint would destroy its functionality.
- The cover for the Distance Regulation Sensor in the bumper grille is composed of radar-penetrable material. The cover is heated to avoid functions being restricted from snow or ice.

### 3.13 Bumper Cover Painting Instructions in Lane Change Assistance Control Module and Front Corner Radar Area

⇒ ["3.13.1 Bumper Cover Painting Instructions in Lane Change Assistance Control Module and Front Corner Radar Area", page 22](#)

#### 3.13.1 Bumper Cover Painting Instructions in Lane Change Assistance Control Module and Front Corner Radar Area

Check if the vehicle is equipped with a radar system in the bumper, via the VIN, for example PR number

A safe outside indicator for the vehicle being equipped with a lane change assistance is for example:

- ◆ A warning lamp -arrow- in the exterior rearview mirror
- ◆ Warning lamp in the mirror glass

#### Radar sensors

The sensors are, for example, located behind the rear bumper cover. You can find information about the exact locations of the radar sensors in the vehicle-specific repair manual.

#### Bumper cover in the area of the lane change assistance control module

The overview shows the left side of the vehicle as an example. Right side is a mirror image, depending on the vehicle model and equipment.



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The area of the lane change assistance control module -1- may not be covered with foil.

To avoid malfunctions of the lane change assistance -1- pay attention to the following parameter when painting the bumper cover -2-.

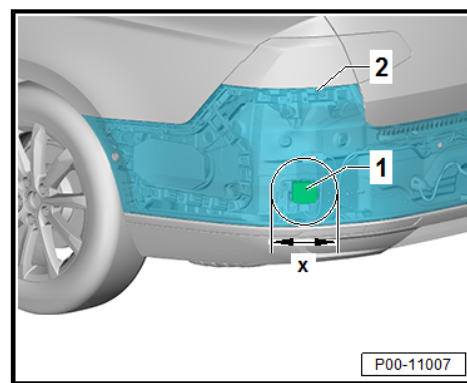
Condition

- Do not exceed the maximum paint coat thickness of 150 µm in the area of the lane change assistance -1-.
- Do not perform any plastic repairs in a radius of -x- = 25 cm.
- Do not perform any filler paste work in a radius of minimum -x- = 25 cm.
- Triple painting is not permitted on the bumper cover -2-.
- Before starting to paint, check using a grinding pattern in the adjacent area if the bumper cover -2- was already repainted.
- Spot-repairs are not permitted in the area of the lane change assistance -1-.
- Use a piece of cover paper to prevent overspray settling into the inner area of the bumper.

**Perform a service calibration with the Vehicle Diagnostic Tester.**

The installation position of the radar sensor changed due to removing and installing.

Afterward always perform a service calibration using the ⇒ Vehicle diagnostic tester.



### 3.14 Bumper Cover Painting Instructions in Lane Change Assistance Control Module and Front Corner Radar Area

⇒ [“3.14.1 Component Location Overview, Lane Change Assistance Control Module and Radar Sensor for Object Detection”, page 23](#)

⇒ [“3.14.2 Paint Information, Radar Field of Vision”, page 24](#)

#### 3.14.1 Component Location Overview, Lane Change Assistance Control Module and Radar Sensor for Object Detection

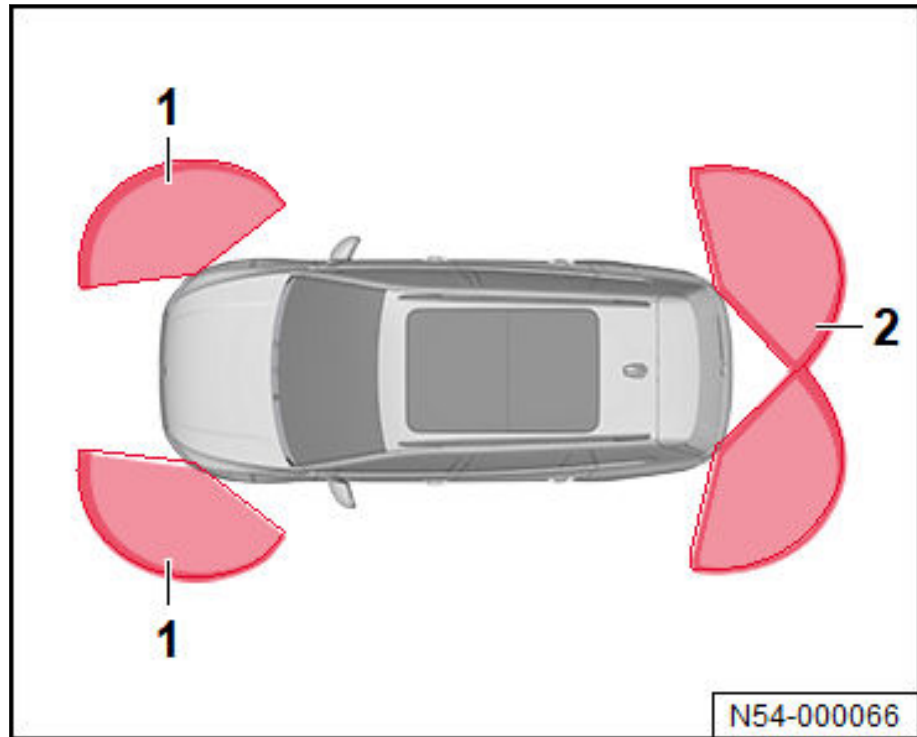
The radar sensors are installed behind the bumper on all four vehicle corners.

### 1 - Front radar field of vision

- ❑ Refer to ⇒ Vehicle-Specific Paint Information; Rep. Gr. 54 ; Paint Repairs; Radar Field of Vision of the Bumper Cover in the Area of the Lane Change Assistance Control Module and Radar Sensor for Object Detection .

### 2 - Rear radar field of vision

- ❑ Refer to ⇒ Vehicle-Specific Paint Information; Rep. Gr. 54 ; Paint Repairs; Radar Field of Vision of the Bumper Cover in the Area of the Lane Change Assistance Control Module and Radar Sensor for Object Detection .



## 3.14.2 Paint Information, Radar Field of Vision

Radar visual area. Refer to ⇒ Vehicle-Specific Paint Information; Rep. Gr. 54 ; Paint Repairs; Radar Field of Vision of the Bumper Cover in the Area of the Lane Change Assistance Control Module and Radar Sensor for Object Detection .

### Condition

To avoid malfunctions of the radar sensors, pay attention to the following parameter when painting the bumper cover in the radar field of vision.

- Tape off the inner marked radar field of vision for all paint work (no overspray permitted).
- After painting, remove the tape from the radar field of vision and remove any stickers present.
- Only paint materials from the respective brand that are suitable for radars are permitted.
- Only wet-on-wet filler of the respective brand that is suitable for radars is permitted as a primer.
- Paint damage may only be repaired according to the layered structure shown.
- Touching up or painting over the entire radar field of vision is only permitted with a clear coat.
- No plastic repairs to the bumper are permitted in the radar field of vision.
- It is not permitted to touch up with base paint in the radar field of vision. It is only permitted to paint the radar field of vision with base paint after sanding the entire radar field of vision down to the plastic.
- The sanding may only be done using sandpaper that is not coarser than grit P400 with minimum plastic removal.

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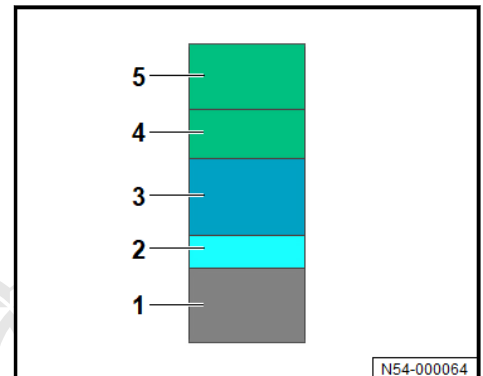
- It is not permitted to foil over, mask or otherwise cover up or overcoat (for example touch-up applicator, spray can, etc.).
- In the case of a repair, the entire radar field of vision must be sanded down to the plastic.

Maximum permitted layer structure for new part and repair painting:

- 1 - Plastic
- 2 - Primer
- 3 - Base Paint
- 4 - Clear Coat
- 5 - Any additional clear coat painting

Condition

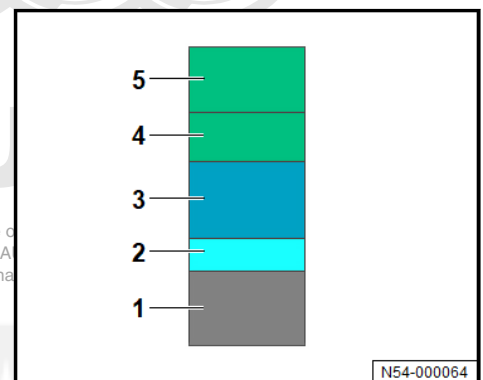
- The entire radiographic area must be painted with a clear coat during the painting process in the radar field of vision!



**Permitted:**

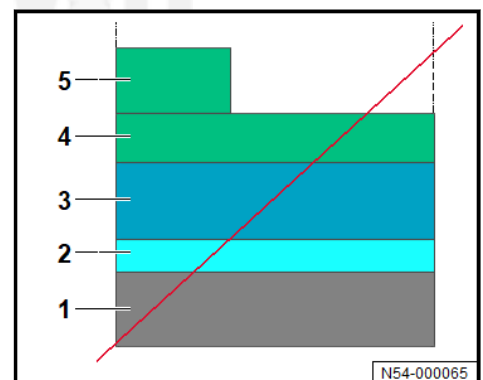
- 1 - Plastic
- 2 - Primer
- 3 - Base Paint
- 4 - Clear Coat
- 5 - Any additional clear coat painting

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**Not permitted:**

- 1 - Plastic
- 2 - Primer
- 3 - Base Paint
- 4 - Clear Coat
- 5 - Any additional clear coat painting over a partial area of the radar field of vision



### 3.15 Painting, Vehicles with Natural Gas Drive (Not for North America Market)

⇒ ["3.15.2 Preparation \(Not for North America Market\)", page 26](#)

⇒ ["3.15.3 Paint, Drying \(Not for North America Market\)", page 26](#)

#### 3.15.1 Natural Gas Drive, Dangers (Not for North America Market)

The pressure in the gas tank must not exceed 260 bar (3,770.99 psi)! This represents a temperature increase of 60 °C (140 °F) for a full tank.

To prevent a temperature increase of more than 60 °C (140 °F), vehicles may not be kept in the paint drier for more than 60 minutes at a maximum temperature of 80 °C (176 °F) or in a combination chamber while in drying mode.

#### 3.15.2 Preparation (Not for North America Market)

- ◆ Personnel working in the paint shop must be informed about the danger potential due to gas tank overheating.
- ◆ For reliable information on whether a certain vehicle has a natural gas drive, refer to the VIN search in ⇒ ELSA .
- ◆ If no VIN search has been started, refer to the specific natural gas labeling at the vehicle rear end, fender, door sill area, selector lever or in the instrument cluster.
- ◆ Only technically sealed vehicles may be serviced.

#### 3.15.3 Paint, Drying (Not for North America Market)

- ◆ The temperature of the natural gas system and the gas tank may not exceed a temperature of +60 °C (140 °F).
- ◆ If materials are being used for the repair that need a drying time longer than 60 minutes, then find an alternative method to dry them such as infrared heat.

Pay attention to all warnings and information about natural gas vehicles found in the repair manual. Refer to ⇒ Fuel Supply, Natural Gas Engines; Rep. Gr. 00 .

### 3.16 High-Voltage Vehicles, Painting

⇒ ["3.16.1 Labeling Vehicles during Vehicle Drop-Off", page 26](#)

⇒ ["3.16.2 Preparation", page 27](#)

⇒ ["3.16.3 Paint, Drying", page 27](#)

#### 3.16.1 Labeling Vehicles during Vehicle Drop-Off

High-voltage vehicles, hybrid or electric vehicles are equipped with a powerful lithium-ion battery and are also equipped with other high-voltage components, like, for example power electronics, A/C compressor and the high-voltage cables.

This is why these vehicles have to be labeled as such during vehicle drop-off in order to inform paint shop personnel about the potential dangers.

### 3.16.2 Preparation

- ◆ For reliable information on whether a certain vehicle is a high-voltage vehicle, refer to the VIN search in ⇒ ELSA .
- ◆ If no VIN search has been started, refer to specific hybrid labeling at the vehicle rear end, fender, door sill area or the power meter in the instrument cluster.
- ◆ Apply the information labels, Warning Sign - High Voltage Warning Sign - High Voltage - VAS 6649- , Warning Sign - "Do Not Switch On" Warning Sign - "Do Not Switch On" - VAS 6650A- , provided by the manufacturer on the high-voltage vehicle.
- ◆ Only a qualified technician, for example a high-voltage technician, may inspect or de-energize the high-voltage system.
- ◆ Chipping, deforming, sharp-edged tools or sources of heat, such as welding, soldering, hot air or thermal bonding are prohibited.

### 3.16.3 Paint, Drying

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- ◆ If the materials being used for the repair need a drying time longer than 90 minutes or above 65 °C (149 °F), then find an alternative method to dry them such as infrared heat or a gas dryer radiator.
- ◆ Do not take longer drives directly after the paint drying times.

Pay attention to the safety precautions. Refer to ⇒ Rep. Gr. 00 ; Safety Precautions when Painting, Vehicles with Electric Drive .

More information can be found in the vehicle-specific repair manual⇒ Rep. Gr. 93 .

## 3.17 Paint Levels, Systematics

⇒ ["3.17.1 New Parts, Paint", page 27](#)

⇒ ["3.17.2 Repairs, Paint", page 27](#)

### 3.17.1 New Parts, Paint

Painting replaced body parts, for example body replacement parts, sub-parts and partial sections from the replacement part program, will be called "New Part - Painting - S 1".

- ◆ Components to weld in - welding parts
- ◆ Components to screw in or off - assembly parts
- ◆ Components made of non-metallic materials - plastic parts

### 3.17.2 Repairs, Paint

#### Repair stages

A repair painting is done on an already existing paint layer. Necessary repair procedures are dependent on the respective dimension and degree of damage.

#### Repair-Paint - S 2

- ◆ Surface paint and paint structure in good shape. Paint only in the top coat area.
- ◆ The work to be completed includes cleaning the existing painted surface, sanding, application of the top coat and oven drying, including smaller sanded through areas.

### Repair-Paint - S 3

- ◆ The complete paint structure is 50% smaller than the paint surface, for example adhesion defects, rust removal or filler paste work.
- ◆ Work to be completed includes a complete paint structure up to a surface of up to 50%. Painting in the recesses is included.

### Repair-Paint - S 4

- ◆ The complete paint structure is 50% greater than the paint surface, for example adhesion defects, rust removal or filler paste work.
- ◆ Work to be completed includes a complete paint structure with a surface greater than 50%. Painting in the recesses is included.

### Calculating the procedure times

- ◆ All time frames for component labor operations are based on work procedures for two layer finishes.

### For three layer finishes

- ◆ A 30% surcharge must be applied for procedures with difficult intermediate sanding steps as for example with high glass finishes. Special positions must be calculated in a separate labor operation/procedure time.
- ◆ Additionally, different intermediate steps may be necessary depending on the base and component conditions, removed or installed. You can find different positions with the same paint level in the labor operations catalog for this. Pay attention to respective texts covering the topics.

See Refer to ➤ [“3.18 Paint Layers - Overview and Steps”, page 28](#).

## 3.18 Paint Layers - Overview and Steps

		Metal					Plastic			Small part	Spot repair
	Description	S1 severe	S1	S2	S3	S4	S1	S2	S3		
1	Work procedures	X	X	X	X	X	X	X	X	X	X
1	Work station and paint booth/drier, preparing	X	X	X	X	X	X	X	X		X

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		Metal					Plastic			Small part	Spot repair
1	Color matching and spraying a sheet metal sample	X	X	X	X	X	X	X	X	X	X
1	Put personal protective equipment on/off	X	X	X	X	X	X	X	X		X
1	Preparing a new part	X	X				X			X	
1	Isolating before filler work, separate preparation time	X			X	X					
1	Primer, preparing	X	X		X	X					

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		Metal					Plastic			Sm all part	Spo t re- pair
1	Fill- er pla ce, pre- par- ing	X	X		X	X			X		
1	IR ra- dia- tor, ap- pli- cat- ion	X	X		X	X			X		X
1	Fill- er, ela sti- fy- ing								X		
1	Bas e pai nt, pre- par- ing	X	X	X	X	X	X	X	X	X	X
1	Bas e pai nt, dry- ing tim e	X	X	X	X	X	X	X	X		X
1	Cle ar coa t, pre- par- ing	X	X	X	X	X	X	X	X		X
1	Cle ar coa t, ela sti- fy- ing						X	X	X		X
1	Cle ar coa t, dry- ing tim e	X	X	X	X	X	X	X	X		X

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		Metal					Plastic			Small part	Spo t repair
1	Work station and spray guns, cleaning	X	X	X	X	X	X	X	X		X
2	Taping off and covering procedures	X	X	X	X	X	X	X	X	X	X
2	Smoothing Work	X			X	X			X	X	
2	Repair area, covering	X			X	X			X		
2	Adhesive primer, applying								X		
2	Primer, applying	X	X		X	X				X	X
2	Filler, applying	X	X		X	X			X	X	
2	Filler, sanding	X	X		X	X			X	X	

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		Metal					Plastic			Small part	Spot repair
2	Sanding procedures, by hand or with machine	X	X	X	X	X	X	X	X	X	X
2	Work station, changing	X	X		X	X			X	X	
2	Base paint, application	X	X	X	X	X	X	X	X	X	X
2	Clear coat, application	X	X	X	X	X	X	X	X	X	X
2	Runs and dust inclusions, removing	X	X	X	X	X	X	X	X	X	X
2	Overlapping areas, polishing	X	X	X	X	X	X	X	X	X	X
2	Finishing	X	X	X	X	X	X	X	X	X	X

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		Metal					Plastic			Small part	Spot repair
2	Are as sanded through, surcharge			X				X			
2	Part to weld-in, additional work	X					Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.				
2	Personal and objective set-up time and additional time in %	X	X	X	X	X					

1: Preparation time only once per order. Labor operation  
51 01 71 XX

2: Painting times depending on area, with procedure 61/62,  
79/80, 85/86 or 87/88

## 4 Original Products

- ⇒ [“4.1 Filler Material”, page 34](#)
- ⇒ [“4.2 Primer Metal”, page 61](#)
- ⇒ [“4.3 Plastic Primer”, page 80](#)
- ⇒ [“4.4 Filler”, page 89](#)
- ⇒ [“4.5 Two-Part Top Coat”, page 133](#)
- ⇒ [“4.6 AquaPlus Solid Top Coats”, page 141](#)
- ⇒ [“4.7 AquaPremium, Top Coats”, page 167](#)
- ⇒ [“4.8 Ready-Mix Top Coats”, page 203](#)
- ⇒ [“4.9 Clear Coats”, page 204](#)
- ⇒ [“4.10 Hardener”, page 247](#)
- ⇒ [“4.11 Thinners”, page 255](#)
- ⇒ [“4.12 Preservation”, page 260](#)
- ⇒ [“4.13 Underbody Protection”, page 264](#)
- ⇒ [“4.14 Sealant Materials”, page 287](#)
- ⇒ [“4.15 Cleaning Agent”, page 297](#)
- ⇒ [“4.16 Finishing Materials”, page 302](#)
- ⇒ [“4.17 Spray Cans, SprayMax System”, page 303](#)
- ⇒ [“4.18 Additional Materials”, page 375](#)

### 4.1 Filler Material

- ⇒ [“4.1.1 Two-Part Steel Filling Paste Set”, page 34](#)
- ⇒ [“4.1.2 Two-Part Fine Filling Paste”, page 38](#)
- ⇒ [“4.1.3 Two-Part Fine Filling Paste, Flexible”, page 42](#)
- ⇒ [“4.1.4 Two-Part Spray Filling Paste”, page 45](#)
- ⇒ [“4.1.5 Two-Part IR Premium Filling Paste”, page 52](#)
- ⇒ [“4.1.6 Two-Part Epoxy Resin Filler”, page 57](#)

#### 4.1.1 Two-Part Steel Filling Paste Set

##### Storage

Guaranteed shelf life of 12 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

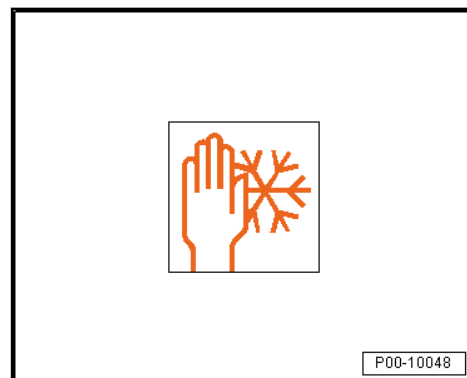


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P00-10050

## Storage Conditions

- ◆ The optimal storage temperature is +20 °C (68 °F).
- ◆ Store in a cool and dry place



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## Characteristics

air drying	Powder + Hardener Liquid	
Flashpoint:	Hardener	33 °C (91.4 °F)
	Powder	Not applicable

## Product Description

### Condition

- The Two-Part Diamond Aluminum Filling Paste Hardener DA 004 211 must be used at temperatures over 30 °C (86 °F) or with a relative humidity over 80%.

The Two-Part Steel Filling Paste Set DA 787 300 A2 is a polyester filler with a metal powder mixture. It is used to create contour matching surfaces at highly used body areas.

The Two-Part Steel Filling Paste Set can be used as a replacement for lead-coated alluvial tin.

The Two-Part Steel Filling Paste Set is easily pliable and sandable while maintaining a high degree of firmness and temperature stability, which makes it suitable to be painted over.

## Suitable base surfaces

- ◆ Steel
- ◆ Metallic bases
- ◆ Galvanized sheet steel

### Base, preparation

- Carefully remove any grease and sand the base surface.

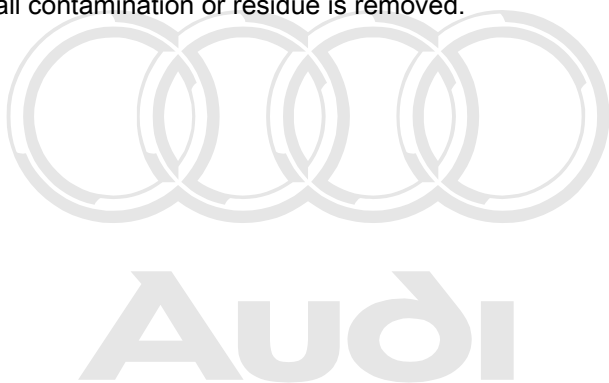


- Sand the base surface down to bare metal using the Pneumatic Brush Grinder Set - VAS 6446- , dust extraction and P40 sandpaper.

If necessary, clean the contaminated area again and then remove cleaning residue again, using the Pneumatic Brush Grinder Set - VAS 6446- .



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.

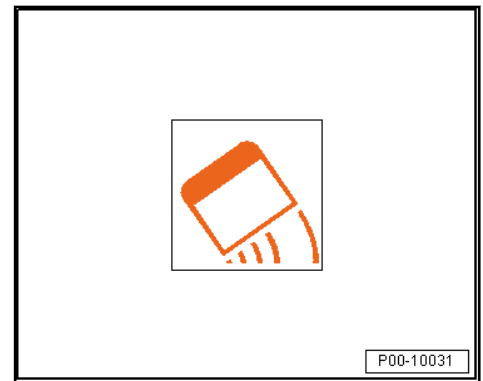


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## Processing

- Perform application type: filling.

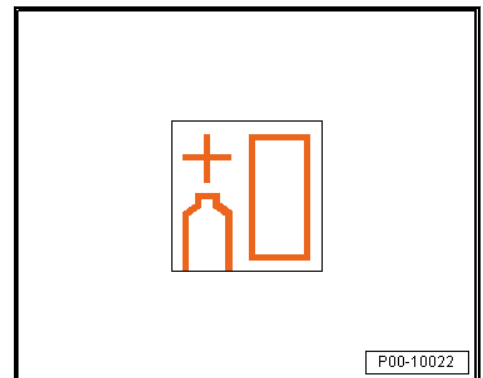


## Mixing ratio

- Mix 1 volume hardener liquid together with 2.5 to 3 volumes powder to get a suitable filling paste product.
- Or mix 10 grams hardener liquid and 58 grams of powder to get a suitable filling paste product.

## Condition

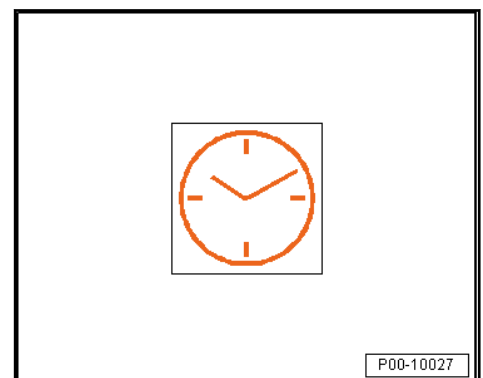
- Avoid using too much hardener liquid. This can negatively affect the final strength and adhesion qualities of the filling paste.



## Curing Time

Working time at +20 °C (68 °F) is four to six minutes.

The reaction temperature must be at least +5 °C (41 °F).



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## Drying

Air drying: flash-off time at +20 °C (68 °F) is 10 minutes.

Hardening process after flashing-off, using a short-wave IR heater.

Pre-hardening	10 minutes at 50 °C (122 °F)
Hardening, first step	10 minutes at 75 °C (167 °F)
Hardening, second step	10 minutes at 85 °C (185 °F)

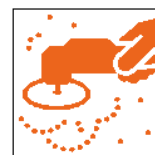
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P00-10028

## Sanding compatibility

- Remove excess two-part steel filling paste before the thermal final curing process, for example using a body plane.
- Sand down to contour, using the rotary sander with P80 dry sandpaper and dust extraction.



P00-10040

## 4.1.2 Two-Part Fine Filling Paste

### Storage

Guaranteed shelf life of 12 months from production date.

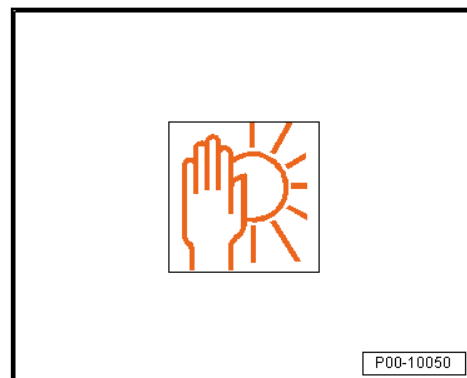
Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



P00-10050

## Storage Conditions

- ◆ Storage temperature +20 °C (68 °F).
- ◆ +30 °C (86 °F) must not be exceeded.



## VOC value

Delivery Viscosity	Pasty
Flashpoint	Filling paste over 23 °C (73.4 °F)
VOC value: 2004/42/IIB(b) (250)170	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 250 g (8.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 170 g (6 oz)/l.

## Product Description

Two-Part Fine Filling Paste LSP 784 002 A2 is a very fine thixotropic polyester filling paste.

Two-Part Fine Filling Paste is suitable for small repairs.

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## Properties

- ◆ Fine and non-porous
- ◆ Removes easily
- ◆ Sands easily
- ◆ High elasticity for touching up plastic surfaces

## Suitable base surfaces

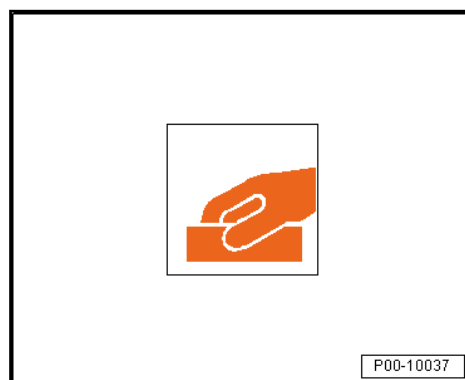
### Condition

- Two-part fine filling paste may not be applied to PVB (acid-hardening) adhesive primers or one-part primers, for example, synthetic resin.

- Application on thermoplastics or viscoplastic paints is not possible. Only use on blank sheet metal.
  - ◆ Steel
  - ◆ Aluminum
  - ◆ Glass fiber reinforced plastics
  - ◆ Old paint and factory paint
  - ◆ Hardened two-part filler/two-part primers
  - ◆ Plastic parts primed with Two-Part Plastic Adhesive Filler LKF 696 009 A2, Two-Part Plastic Adhesive Filler LKF 696 040 A2 or Bonding Agent LVM 823 000 A2
  - ◆ Primed surfaces with two-part polyester filling paste.
- 

### Base, preparation

- Carefully remove any grease and sand the base surface.
- With UP-GF underbodies, clean components of any residual agents and sand the surface.



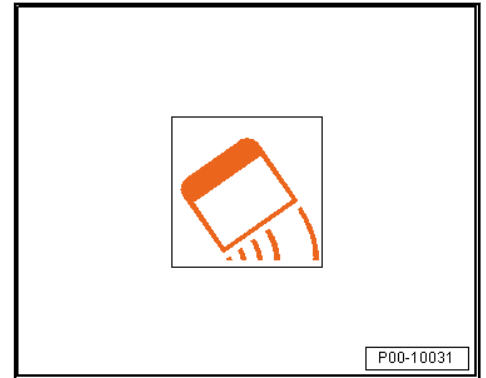
- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



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## Processing

- Perform application type: filling.

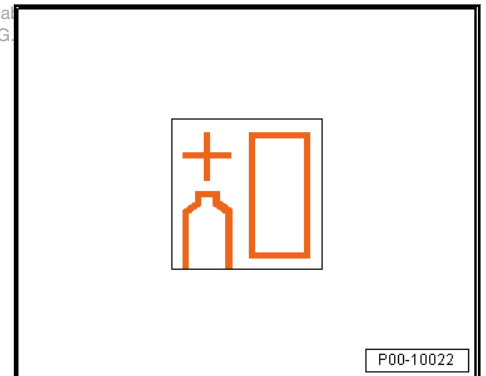


## Mixing ratio

- Add 2% by weight Two-Part Hardener LVM 018 000 A1/A2.

## Condition

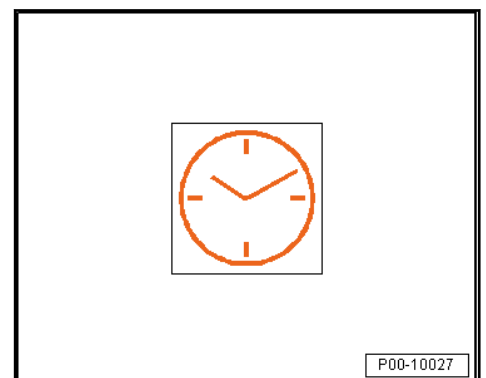
- Avoid using excessive hardener paste to prevent it from bleeding through, especially on daylight colors and light metallic colors.



## Curing Time

The curing time at +20 °C (68 °F) room temperature is about three to five minutes.

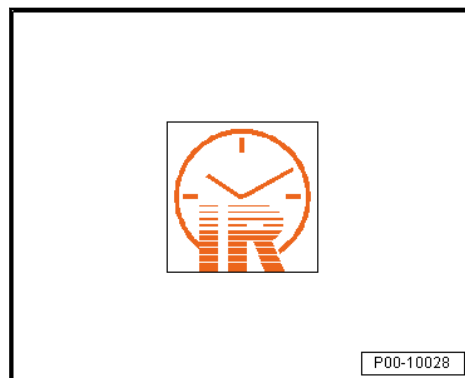
The reaction temperature must be at least +5 °C (41 °F).



## Drying

Air drying at +20 °C (68 °F) room temperature: 15 to 30 minutes.

IR drying, short-wave IR heaters for two to three minutes (at 50% power).

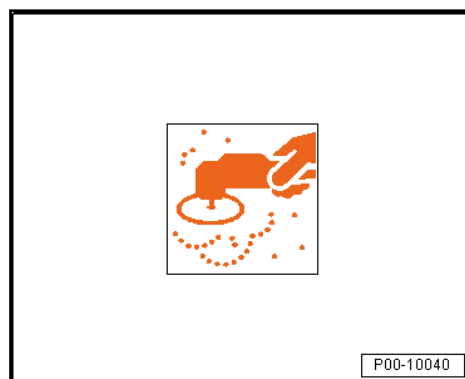


## Sanding compatibility

- Sand down to contour, using the rotary sander with P180 to P240 dry sandpaper and dust extraction.

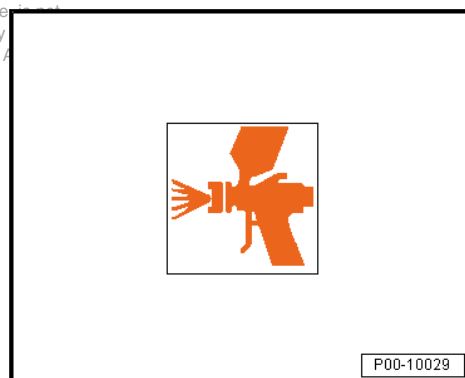
Condition

- Temperature resistance up to +80 °C (176 °F).



## Reworking

- Paint over with top coat.
- ◆ One-Part Wash Primer LVM 044 007 A2 / One-Part Wash Primer LVM 044 171 A2
- ◆ Two-Part Wash Primer LHV 043 000 A2 and Two-Part HS Filler
- ◆ Two-Part Plastic Adhesive Filler LKF 696 009 A2 / Two-Part Plastic Adhesive Filler LKF 696 040 A2
- ◆ Bonding Agent LVM 823 000 A2 and elasticized Two-Part HS Filler for plastic parts



### 4.1.3 Two-Part Fine Filling Paste, Flexible

#### Characteristics

Mixing ratio	2 to 3% by weight
Add hardener	Two-Part Hardener LVM 018 00 A1
Pot life	Two to four minutes at +20 °C (68 °F)

Drying time when air drying at +20 °C (68 °F) room temperature	20 to 30 minutes	
IR drying, short-wave	Three minutes at 50 % output	
IR drying, medium-wave	Five minutes	
Sanding compatibility:	Preliminary sanding	Final sanding
Wet	As fine filling paste, P180 grit	As fine filling paste, P320 - P360 grit
Dry	As filling paste P80 grit, as filling paste P120 grit	As filling paste P120, P240 grit, as fine filling paste P280 grit

## Product Description

Two-part fine filling paste, flexible LSP 787 100 A1 is a two component filler paste with high filling characteristics.

Two-part fine filling paste, flexible, does not collapse and has excellent adhesion on multiple base surfaces.

Two-part fine filling paste, flexible, is especially suitable for plastics.

- ◆ For repair of plastic exterior body components where the surface is damaged with material removed, scratches, holes, rips, without being broken through
- ◆ For filling of KU-plastics that were previously repaired with the Plastic Repair Set D 007 700
- ◆ For filling over a repair area to eliminate a mark

## Properties

- ◆ Constant, fine, creamy consistency
- ◆ High filling characteristics - no collapsing
- ◆ Hardens quickly
- ◆ Sands well
- ◆ Good adhesion on metal and plastic

## Suitable base surfaces

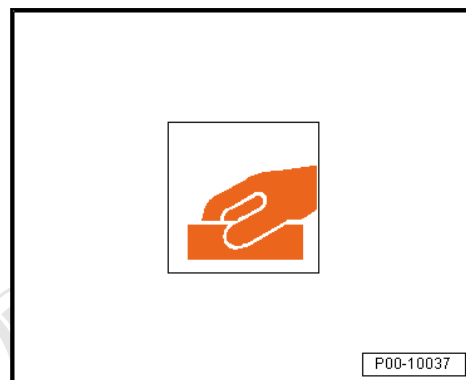
### Condition

- Two-part fine filling paste, flexible, may not be applied to PVB (acid-hardening) adhesive primers or one-part primers, for example, synthetic resin.
- Application on thermoplastic or elastic coatings is not possible. Only apply filler on uncoated sheet metal.
- ◆ Steel

- ◆ Galvanized sheet steel
- ◆ Aluminum
- ◆ On all cleaned and sanded plastics in vehicle area
- ◆ Fiberglass-reinforced plastics UP-GF
- ◆ Well-sanded old paint or factory paint
- ◆ Hardened two-part filler/two-part primers

### Base, preparation

- Carefully remove any grease and sand the base surface.
- With UP-GF underbodies, clean components of any residual agents and sand the surface.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



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### Reworking

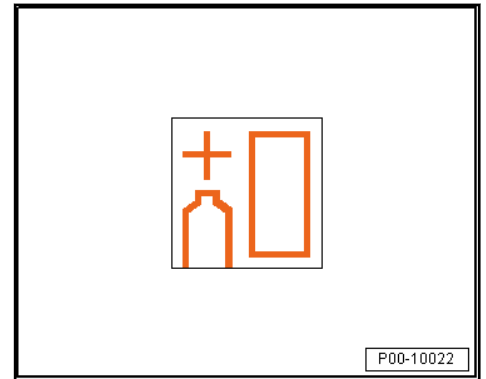
- Fine filling paste by itself.
- Rework fine filling paste with Two-Part Fine Filling Paste LSP 784 002 A2 or with Two-Part Spray Filling Paste ALN 788 007, except on galvanized steel.
- Prime uncoated spots and filled areas with Two-Part Wash Primer LHV 043 000 A2 and then fill with Two-Part HS Performance Filler LVM 014 ... .



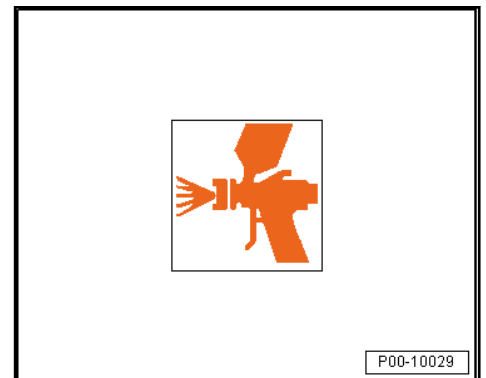
- Avoid using excessive hardener paste to prevent it from bleeding through, especially on daylight colors and light metallic colors.

Condition

- Reaction temperature at least +5 °C (41 °F).



- Paint over with top coat.



- Before filling, sand the entire area using the rotary sander with P280 to P320 dry sandpaper and dust extraction.

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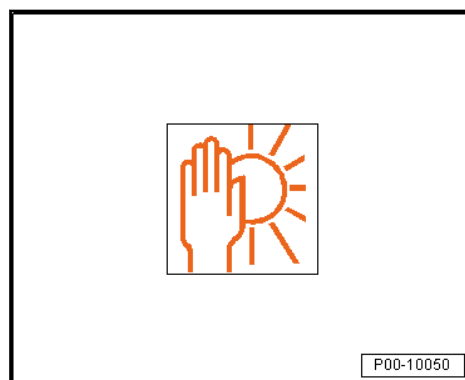


#### 4.1.4 Two-Part Spray Filling Paste

## Storage

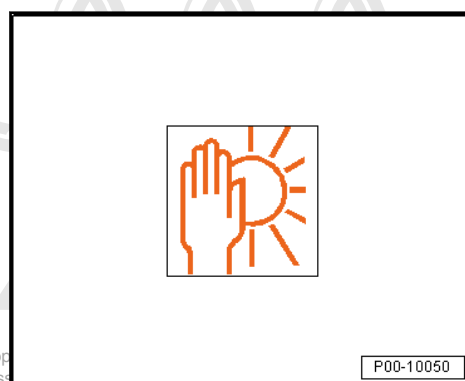
Guaranteed shelf life of 12 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Storage Conditions

- ◆ Storage temperature +20 °C (68 °F).
- ◆ +30 °C (86 °F) must not be exceeded.



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## VOC value

Delivery Viscosity	Thixotropic
Flashpoint	Above 23 °C (73.4 °F)
VOC value: 2004/42/IIB(b) (250)250	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 250 g (8.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 250 g (8.8 oz)/l.

## Product Description

The Two-Part Spray Filling Paste ALN 788 007 is a two-part spray filling paste for vehicle repair work.

- ◆ To level uneven surface irregularities
- ◆ Is especially suitable for use on large surfaces.
- ◆ Sprays on very well.
- ◆ Easy to process and maintains good stability under load.

- ◆ Flows well

### Suitable base surfaces

#### Condition

- Two-Part Spray Filling Paste ALN 788 007, flexible, may not be applied to PVB (acid-hardening) adhesive primers or one-part primers, for example, synthetic resin.
- Application on thermoplastic or elastic coatings is not possible. Only apply filler on uncoated sheet metal.
- ◆ Cleaned and sanded, primed with Two-Part Wash Primer LHV 043 000 A2 and then insulated with Two-Part HS Performance Filler steel panels, galvanic/electrolytic galvanized steel panels or aluminum
- ◆ Hardened, solvent-resistant, well-preserved and sanded old paint or factory paints.
- ◆ Areas filled with two-part polyester filling paste.
- ◆ Cleaned and sanded UP-GF surfaces, free of separating agents

### Base, preparation

- Carefully remove any grease and sand the base surface.
- With UP-GF underbodies, clean components of any residual agents and sand the surface.

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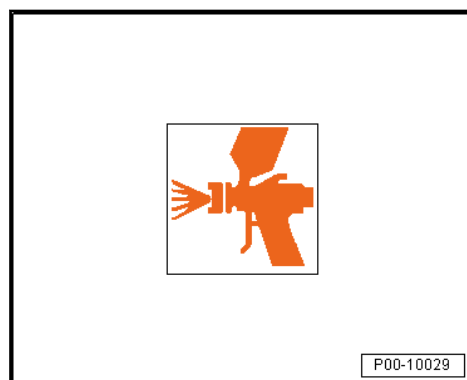


- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



### Processing

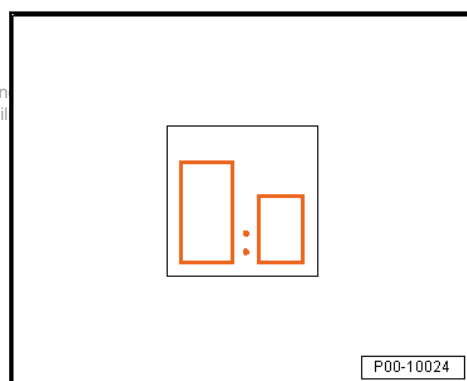
- Perform compliant application type.



### Mixing ratio

- Add 5% Two-Part Hardener LHA 841 000 A2 by volume.

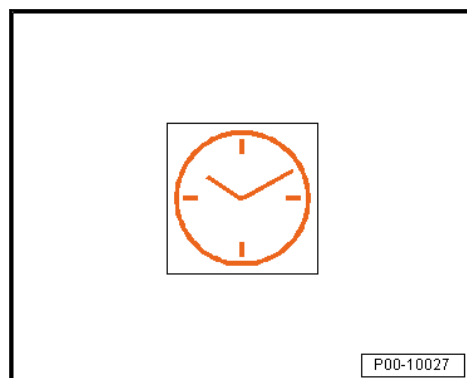
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### Processing

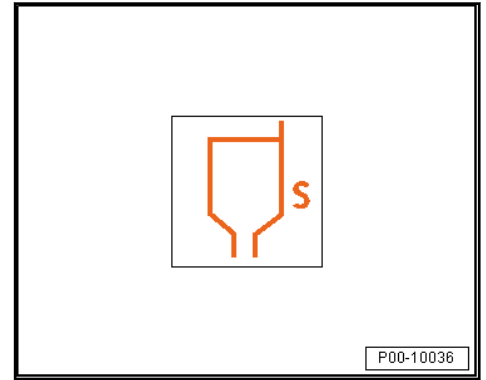
The processing time at +20 °C (68 °F) room temperature: 20 to 30 minutes.

Reaction temperature must be at at least +15 °C (59 °F).



### Processing viscosity

Set processing viscosity to +20 °C (68 °F) material temperature.



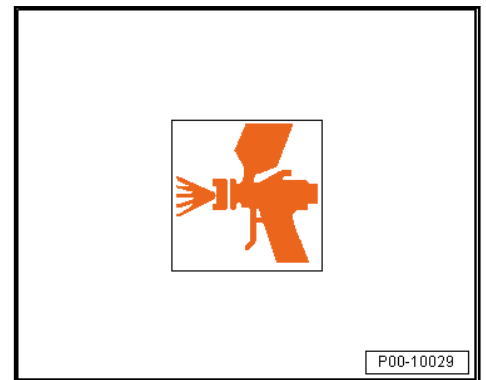
### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure
Compliant	2.0 - 2.5 mm	2.0 - 3.0 bar (29.01 - 43.51 psi)

Five spray applications result in 500 to 600 µm.

Layer thicknesses up to 1000 µm are possible.

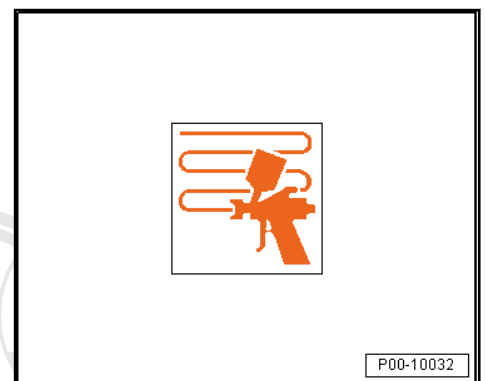


### Processing

- Perform the application type painting.

#### Condition

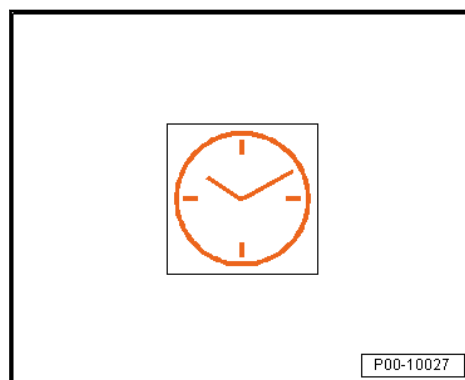
- In the application type painting, the spraying filling paste must be applied all at one time.



## Drying

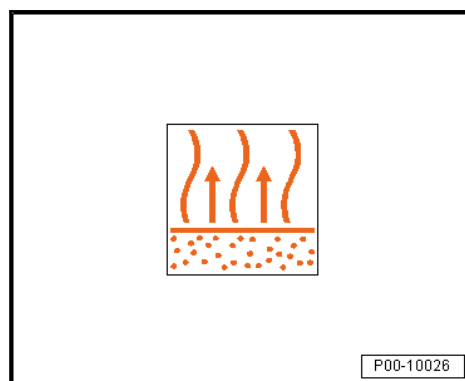
Air dry at +20 °C (68 °F) room temperature:

Can be sanded after two hours.

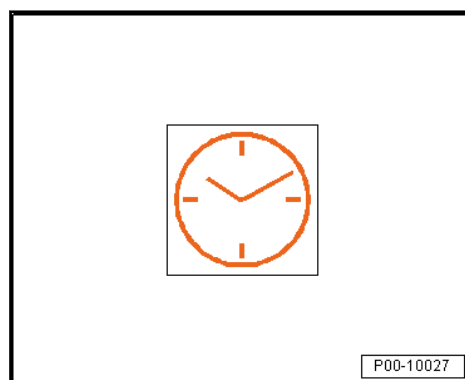


Forced drying:

Flash-off time of 5 to 10 minutes.



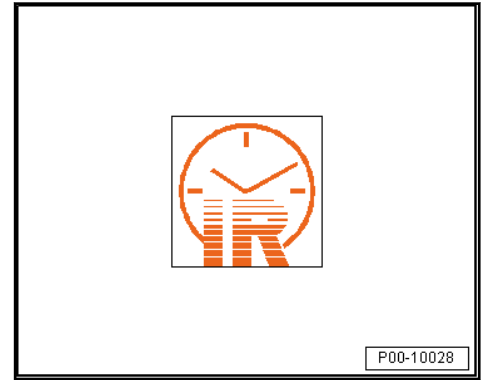
Drying time of 30 to 35 minutes at an object temperature of +60 to 65 °C (140 to 149 °F).



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Infrared drying:

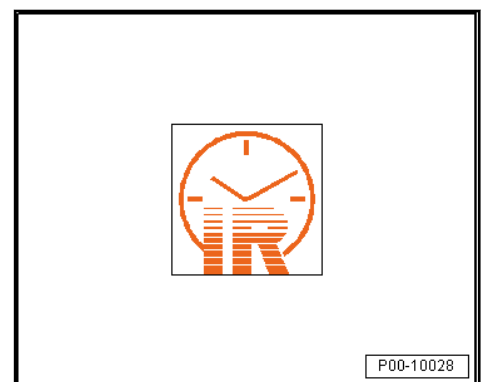
Flash-off time is at least five minutes.



Drying time 10 to 12 minutes, short-wave heater at 50% power.

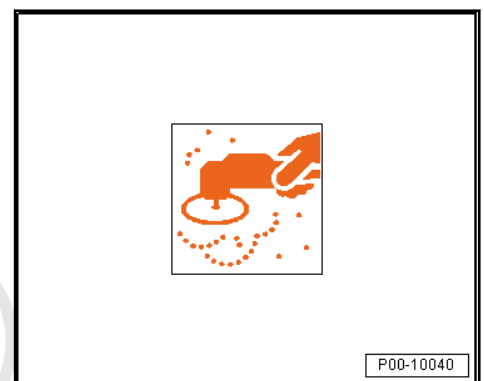
Condition

- Temperature resistance up to +80 °C (176 °F).



### Further processing

- Perform pre-sanding procedure, dry, using the rotary sander with P120 to P220 dry sandpaper and dust extraction.
- Perform post-sanding procedure, dry, using the rotary sander with P240 to P360 dry sandpaper and dust extraction.

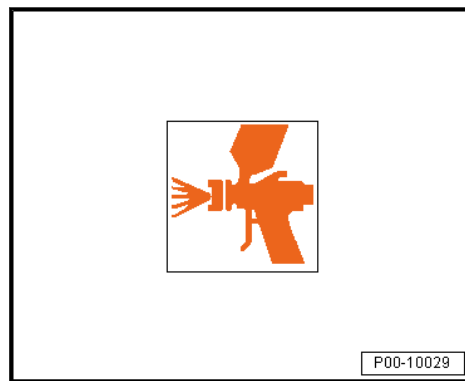


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## Reworking



Rework with:

- ◆ Two-Part Wash Primer LHV 043 000 A2, only for sanded-through areas
- ◆ Two-Part HS Filler

Top coat finish with:

- ◆ Water-based base paint, Two-Part HS Clear Coat and Two-Part HS Top Coat

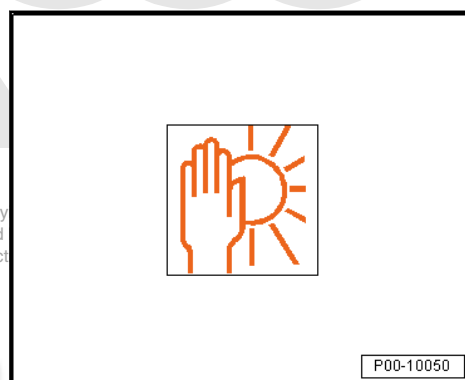
### 4.1.5 Two-Part IR Premium Filling Paste

#### Storage

Guaranteed shelf life of 12 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

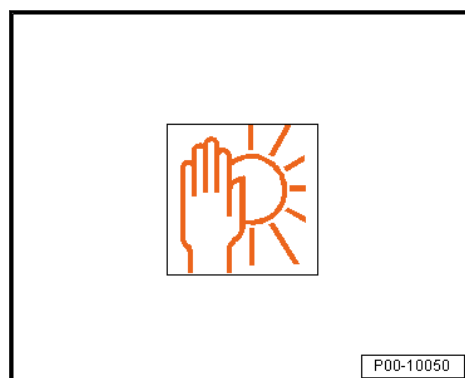
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#### Storage Conditions

- ◆ Storage temperature +20 °C (68 °F).
- ◆ +30 °C (86 °F) must not be exceeded.



## VOC value

Delivery Viscosity	Pasty
Flashpoint	Filling paste over 23 °C (73.4 °F)
VOC value: 2004/42/IIB(b) (250)150	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 250 g (8.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 150 g (5.3 oz)/l.

## Product Description

The Two-Part IR Premium Filling Paste LSP 787 220 A1/A2/A3 is a high-quality polyester filling paste used for vehicle paint-work repairs.

- ◆ For all conventional metallic base surfaces
- ◆ Also adheres very well to galvanized base surfaces.
- ◆ Sands well
- ◆ Non-porous and easily-shapeable.
- ◆ Well-suited for IR drying

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## Suitable base surfaces

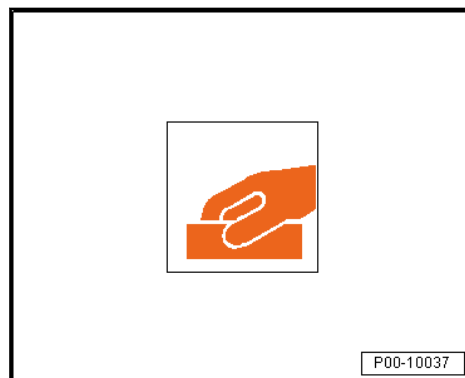
### Condition

- Two-part IR premium filling paste may not be applied to PVB (acid-hardening) adhesive primers or one-part primers, for example, synthetic resin.
- Application on thermoplastic or elastic coatings is not possible. Only apply filler on uncoated sheet metal.
- ◆ Steel Panel
- ◆ Galvanized sheet steel
- ◆ Aluminum
- ◆ Well-sanded factory or old paint
- ◆ Hardened and sealed two-part filler/two-part primers
- ◆ Cleaned and sanded UP-GF surfaces, free of separating agents



### Base, preparation

- Carefully remove any grease and sand the base surface.
- With UP-GF underbodies, clean components of any residual agents and sand the surface.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



### Processing

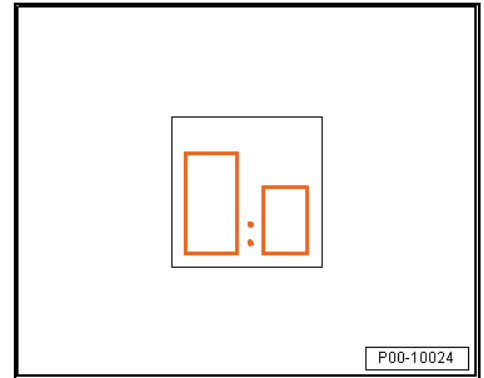
- Perform application type: filling.

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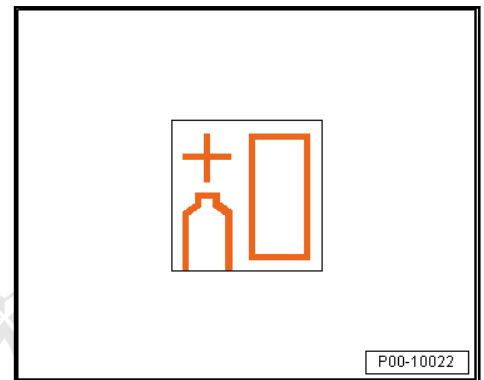


### Mixing ratio

- Add 2% by weight Two-Part Hardener LVM 018 000 A1/A2.



- Avoid using excessive hardener paste to prevent it from bleeding through, especially on daylight colors and light metallic colors.

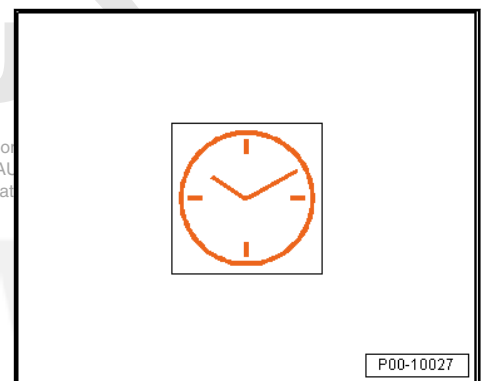


### Drying

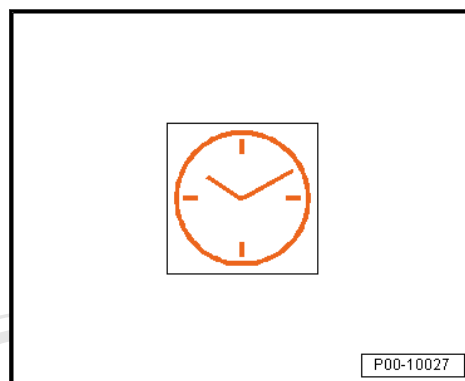
The processing time at +20 °C (68 °F) room temperature: two to four minutes.

The reaction temperature must be at least +5 °C (41 °F).

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Air drying at +20 °C (68 °F) room temperature: 15 to 30 minutes.



IR drying, short-wave IR heaters for two to three minutes at 50% power.



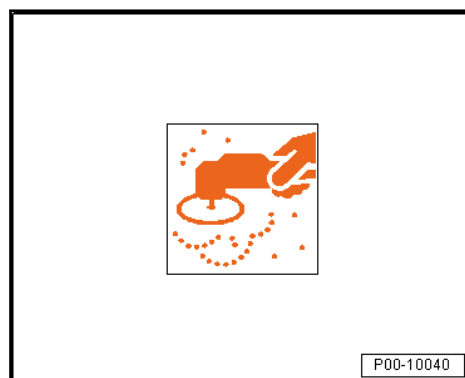
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### Sanding compatibility

- Perform pre-sanding procedure, dry, using the rotary sander with P80 to P220 dry sandpaper and dust extraction.
- Perform post-sanding procedure, dry, using the rotary sander with P180 to P240 dry sandpaper and dust extraction.

#### Condition

- Temperature resistance up to +80 °C (176 °F)



## Reworking

- Fine filling paste by itself.
- Rework fine filling paste with Two-Part Fine Filling Paste LSP 784 002 A2 or with Two-Part Spray Filling Paste ALN 788 007, except on galvanized steel.
- Prime uncoated spots and filled areas with Two-Part Wash Primer LHV 043 000 A2 and then fill with Two-Part HS Performance Filler LVM 014 ...

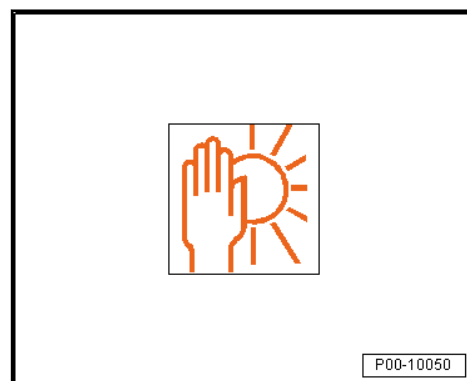


## 4.1.6 Two-Part Epoxy Resin Filler

### Storage

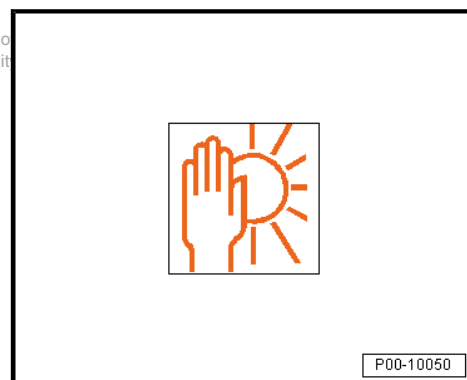
Guaranteed shelf life of 12 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### Storage Conditions

- ◆ Storage Temperature +10 °C to +30 °C (50 °F to 86 °F)
- ◆ Store in a cool and dry place
- ◆ No direct sunlight



### Characteristics

Density	1.55 g (0.1 oz)/cm <sup>3</sup>
Shore-D-Hardener at 20 °C (68 °F)	84
Processing temperature	+10 °C to +50 °C (50 °F to 122 °F)



Temperature resistance	-40 °C to +110 °C (-40 °F to 230 °F)
------------------------	--------------------------------------

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### Product Description

Two-Part Epoxy Resin Filler D 787 400 M2 is a quick hardening epoxy resin filler for use on the vehicle body.

The mineral filled scraper (no contact corrosion) is special for the use of tin and filler paste for joints and seam areas.

The quick hardening and the easy working allow a cheaper application in the area of the body repair.

---

### Application areas

- ◆ Liquid tin filler
  - ◆ Join filler
  - ◆ Bonding of metals
  - ◆ Paint carrier unit
- 

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### Properties

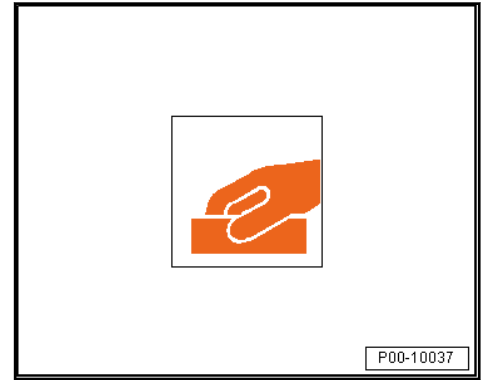
- ◆ Good adhesion on metal, aluminum and zinc
  - ◆ Easy working, sanding, planing
  - ◆ Ideal paint carrier unit
  - ◆ Easy to model, very strong
  - ◆ Quick hardening
  - ◆ No collapse or running
- 

### Base, preparation

- Carefully degrease the base surfaces.



- Grind down to bare metal, using P60 dry sandpaper and dust extraction.

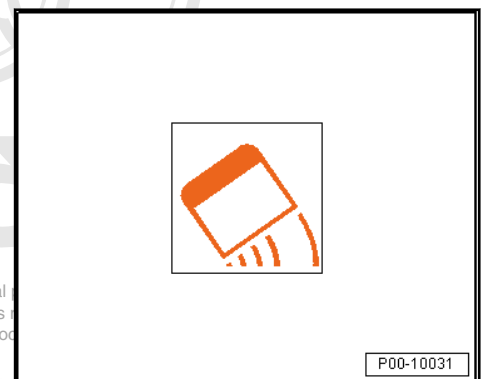


- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



### Processing

- Perform application type: filling.

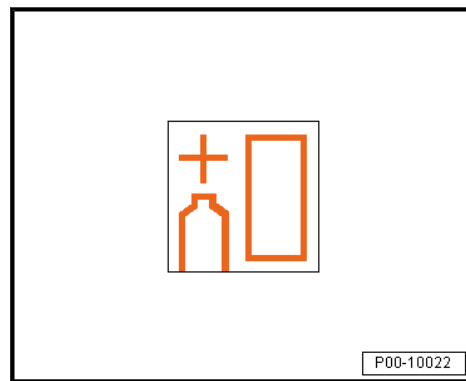


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### Mixing ratio

The two-part epoxy filler is supplied with a closed two-part cartridge and does not require manual mixing.

- Install the mixer.
- Do not use the first 5 cm of the two-part epoxy because it cannot be mixed correctly.
- Press out two-part epoxy until it has a consistent gray color.



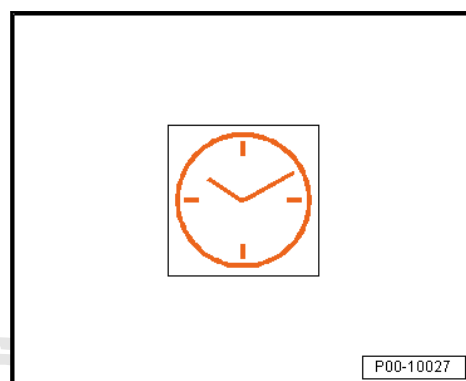
## Drying

Pot life at +20 °C (68 °F) room temperature for 30 minutes

Hardening: four hours

Recoating: 1.5 to 2 hours

Air drying: four hours



IR drying: drying with short-wave IRT radiator.

Pre-hardening	10 minutes at 45 °C (113 °F)
Hardening, first step	10 minutes at 85 °C (185 °F)
Hardening, second step	Let cool down to room temperature 20 °C to 25 °C (68 °F to 77 °F)

## Condition

- Pay attention that the two-part epoxy filler is not heated above 100 °C (212 °F) when hardening.
- When hardening edges or cambers, pay attention that a consistent hardening temperature is maintained.



## Sanding compatibility

The hardened and cooled down two-part epoxy resin filler can be sanded with dust extraction, body part file or P80 dry sandpaper.



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## 4.2 Primer Metal

⇒ [“4.2.1 One-Part Anti-Corrosion Wash Primer”, page 61](#)

⇒ [“4.2.2 One-Part Wash Primer”, page 66](#)

⇒ [“4.2.3 Two-Part Wash Primer”, page 70](#)

⇒ [“4.2.4 Zinc Spray”, page 75](#)

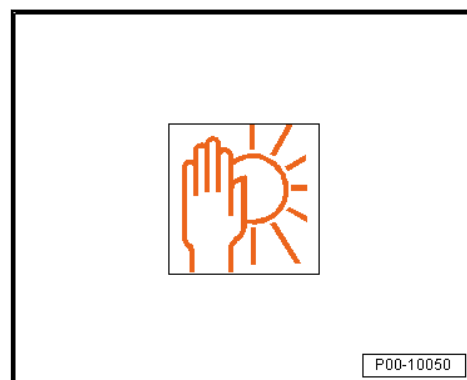
⇒ [“4.2.5 The Right Primer for each Repair”, page 79](#)

### 4.2.1 One-Part Anti-Corrosion Wash Primer

#### Storage

Guaranteed shelf life of 12 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



#### VOC value

Delivery Viscosity	90 -100 seconds
Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB(c) (780)780	The EU limit for this product (product category IIB.c) in ready-to-use form is a maximum of 780 g (27.5 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 780 g (27.5 oz)/l.

## Product Description

One-Part Anti-Corrosion Wash Primer ALN 002 003 10 is a zinc chromate-free one-part product on a polyvinylbutyral base for vehicle repairs.

With its special pigment and binder composition it provides excellent protection against corrosion, outstanding adhesion and is also certified for welding.

One-part corrosion protection primer is non-conductive and therefore not suitable for spot-welding.

For residual rust spots on corners and edges as well as bare-sanded areas, recoat using One-Part Anti-Corrosion Wash Primer ALN 002 003 10 with a Two-Part HS Filler.

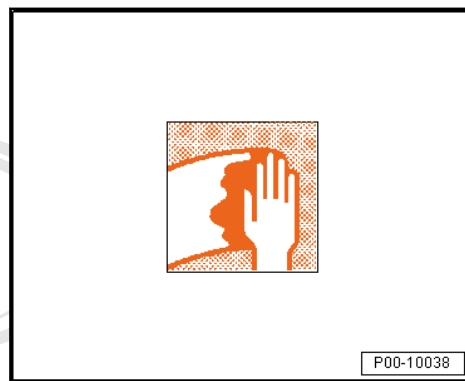
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## Suitable base surfaces

- ◆ Cleaned and sanded, galvanized/electrolytically zincd sheet steel or soft aluminum
  - ◆ Sanded factory primer
  - ◆ Glass fiber reinforced plastics
  - ◆ Hardened, solvent-resistant, well-preserved and sanded old paint or factory paint with the exception of thermoplastic paint
  - ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit
- 

## Base, preparation

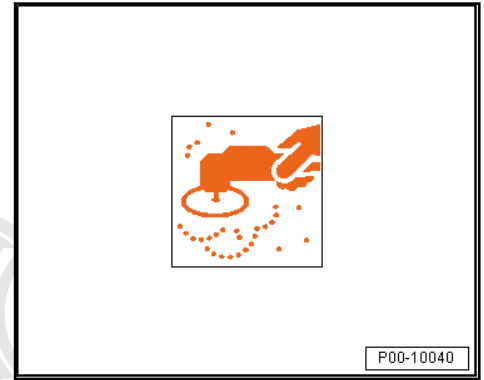
- Carefully clean using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



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- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.



- Or wet-sand with P800 to 1000 grit wet sandpaper.
- Thoroughly remove any rust spots and sand any transitions to old paint.



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## Thinner

Dilutable with:

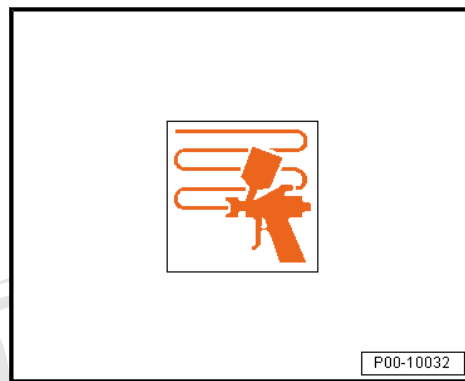
- ◆ Two-Part Thinner LVE 009 001 A5
- ◆ Two-Part Thinner, Plus LHA 014 000 A5
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5



## Processing



- Perform the application type coat.



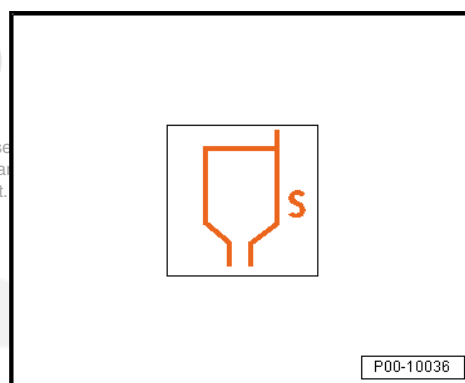
### Processing viscosity

Processing viscosity 4 mm for +20 °C (68 °F), German Industry Standardization 53211.

Add 40% thinner at +20 °C (68 °F) material temperature.

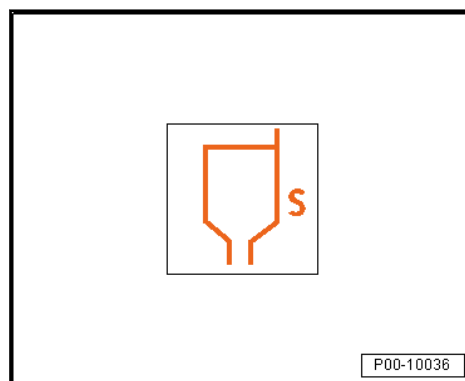
### Condition

- Use a measuring stick to mix when pouring in the thinner.



Processing viscosity 4 mm gravity feed spray gun “Compliant” and “HVLP”:

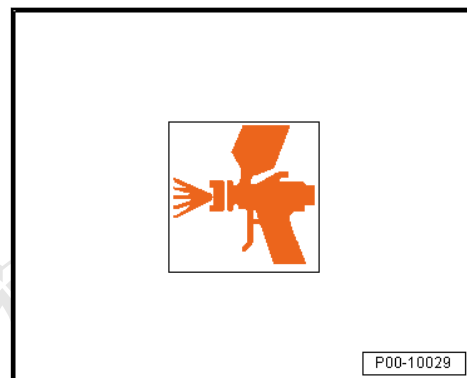
- ◆ DIN 4 mm: 18 to 20 seconds
- ◆ ISO 4 mm: 44 to 53 seconds



### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4 mm	1.5 - 3.0 bar (21.76 - 43.51 psi)	
HVLP	1.3 - 1.4 mm		0.7 bar (10.15 psi)



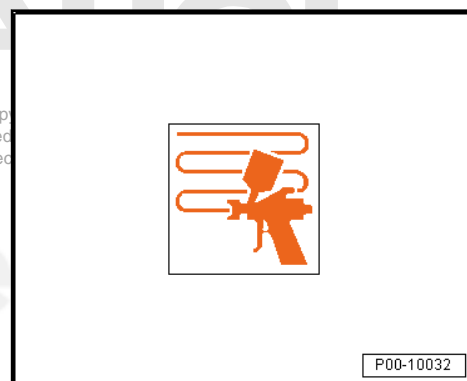
### Spray application

- Perform two spray applications.

The prescribed layer thickness is 15 to 20 µm.

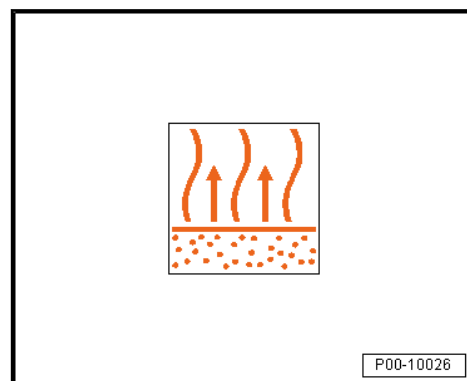
#### Condition

- With the application type painting, the one-part anti-corrosion wash primer must be applied one to two times, each time all at once.
- The delivery viscosity is the same as the processing viscosity.



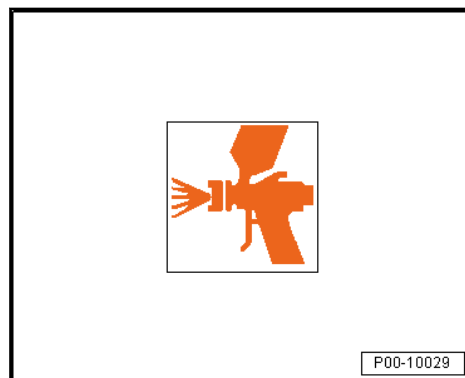
### Flash-off time

At +20 °C (68 °F) room temperature for 15 to 25 minutes.



## Reworking

- Fill with two-part HS filler. Refer to ➤ [“4.4 Filler”, page 89](#) .



## 4.2.2 One-Part Wash Primer

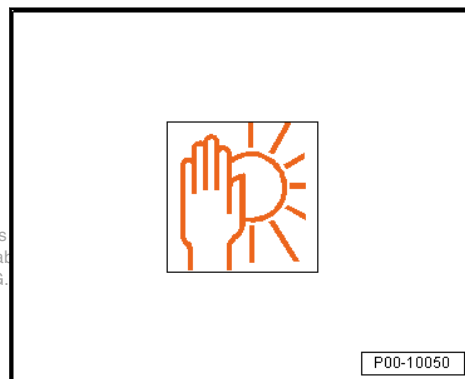
### Storage

The assured storage stability of the one-part wash primer is 24 months from production date.

- ◆ One-Part Wash Prime, Light Gray LVM 044 007 A2
- ◆ One-Part Wash Prime, Dark Gray LVM 044 171 A2

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

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### VOC value

Delivery Viscosity	At least 60 seconds
Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB(c) (780)760	The EU limit for this product (product category IIB.c) in ready-to-use form is a maximum of 780 g (27.5 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 760 g (26.8 oz)/l.

### Product Description

The One-Part Wash-Primer LVM 044 007/171 A2 is a zinc chromate-free one-part wash-primer for all usual metallic base surfaces.

- ◆ Suitable for all conventional metallic base surfaces
- ◆ VOC compliant and protects well against corrosion
- ◆ Easy handling, one-part material
- ◆ Certified for welding

- ◆ Available in light gray and dark gray

### Suitable base surfaces

#### Condition

- Because of the wide variety of alloys and manufacturing processes for metals, the base surface must first be tested to ensure that the pre-treatment provides sufficient adhesion.
- ◆ Steel
- ◆ Cleaned and sanded, galvanized/electrolytically zincd sheet steel or soft aluminum
- ◆ Sanded factory primer, not on large areas of new parts that have been sanded and coated with CDC primer.
- ◆ Thoroughly sanded old primer or factory primer, excluding thermoplastic coating
- ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit

### Base, preparation

- Carefully clean using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any rust spots and sand any transitions to old paint.



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- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.

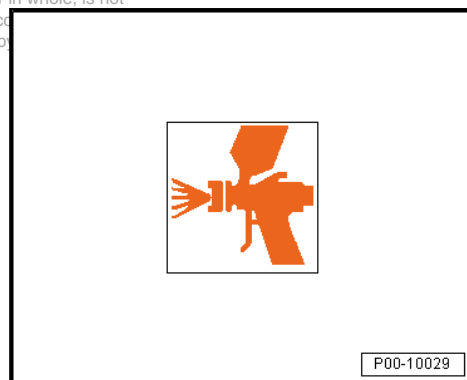


## Processing

### Dilutable with:

- ◆ Two-Part Thinner LVE 009 001 A5
- ◆ Two-Part Thinner, Plus LHA 014 000 A5
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5
- ◆ Two-Part Thinner, Long LVM 009 300 A2 for large objects and high temperatures

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- Perform the application type coat.



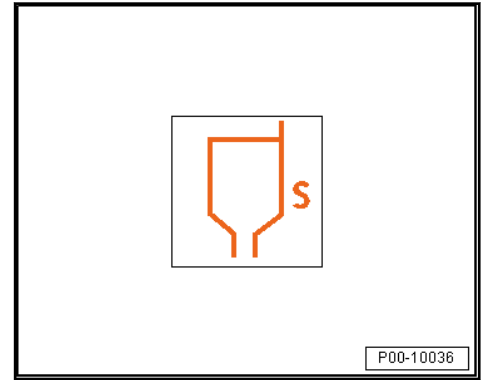
## Processing viscosity

Condition

- Use a measuring stick to mix when pouring in the thinner.

Processing viscosity 4 mm for +20 °C (68 °F), German Industry Standardization 53211 is the mixed viscosity.

Adding 50% thinner at +20 °C (68 °F) material temperature.

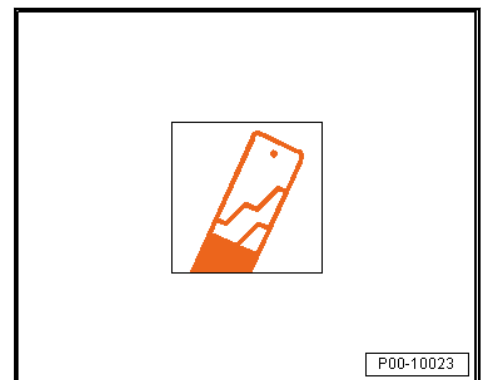


Processing viscosity 4 mm gravity feed spray gun “Compliant” and “HVLP”:

DIN 4 mm: 18 to 20 seconds

ISO 4 mm: 36 to 45 seconds

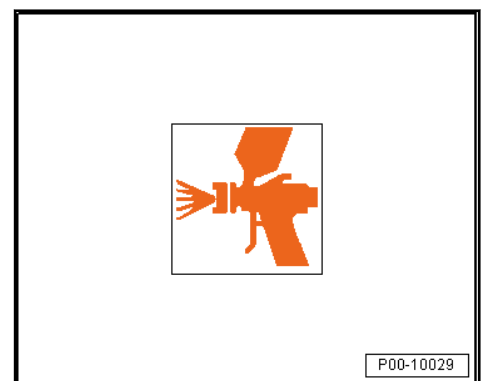
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#### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.5 mm	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	1.3 - 1.5 mm		0.7 bar (10.15 psi)



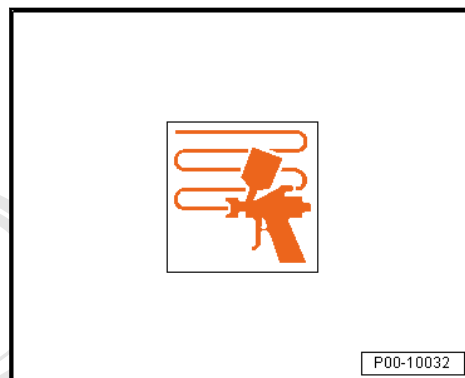
## Spray application

- Apply a coat when using as wash primer.

The prescribed layer thickness is 10 to 15 µm.

### Condition

- When insulating small, sanded through areas, use only water-based base paint or two-part HS top coat for the wet-on-wet and intermediate sanding processes on the One-Part Wash Primer LVM 044 007 A2/LVM 044 171 A2. Do not perform this action if the sanded-through area is not larger than 5.0 cm in diameter.



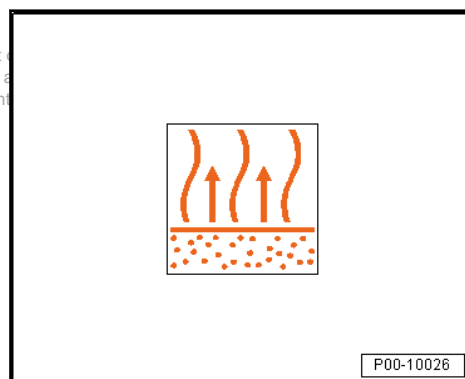
## Flash-off time

Flash-off time at +20 °C (68 °F) room temperature:

### Recoating after:

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10 to 15 minutes.	with Two-Part HS Filler
20 to 30 minutes	With water-based paint, for small sanded-through areas only
10 to 15 minutes	With two-part HS top coat, for small sanded-through areas only
45 to 60 minutes	Can be sanded

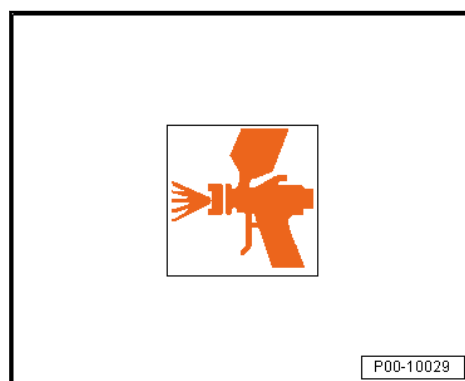


## Reworking

Use	Rework with
As wash primer	Two-Part HS Filler
As wash primer with intermediate sanding	Wet-sand with P800-1000 grit sandpaper.

Afterwards, can be painted over with:

- ◆ Water-based base paint and two-part HS clear coat for small sanded-through areas only
- ◆ Two-part HS top coat for small sanded-through areas only

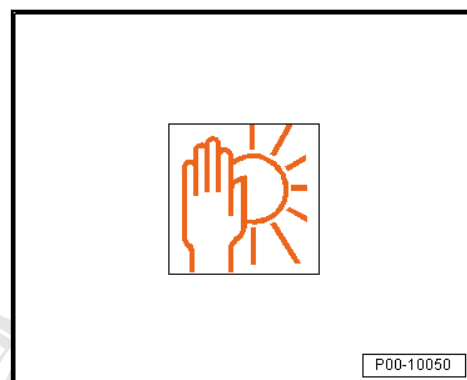


## 4.2.3 Two-Part Wash Primer

## Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## VOC value

Delivery Viscosity	At least 60 seconds
Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB(c) (780)760	The EU limit for this product (product category IIB.c) in ready-to-use form is a maximum of 780 g (27.5 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 760 g (26.8 oz)/l.

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## Tip

The yield was calculated taking into account the recommended layer thickness and the proportion of solid material without thinner. The corresponding processing losses were not taken into account.

## Product Description

Two-Part Wash Primer LHV 043 000 A2 is a zinc chromate-free and phenol-free acid-hardening two-part wash primer from the PVB system.

- ◆ Passivizing properties provide excellent protection against corrosion.
- ◆ For metallic base surfaces, for aluminum and galvanized sheet steel.
- ◆ Simple processing properties
- ◆ Olive gray

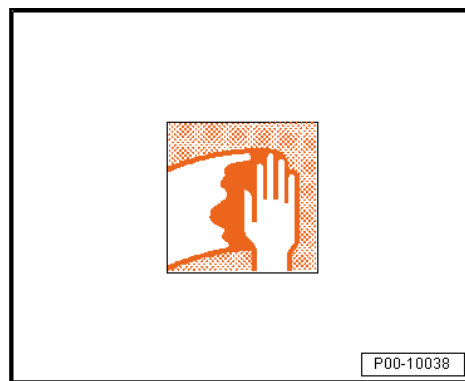
## Suitable base surfaces

- ◆ Bare sheet steel, cleaned and sanded
- ◆ Cleaned and sanded, galvanized/electrolytically zincd sheet steel or soft aluminum
- ◆ Sanded factory primer

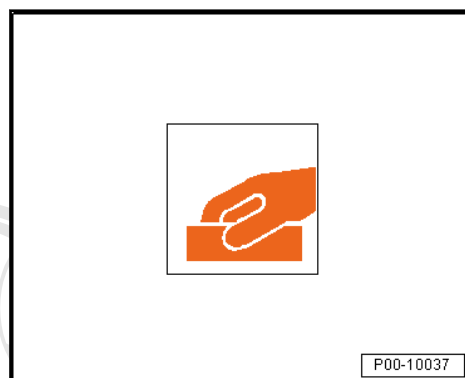
- ◆ Thoroughly sanded old primer or factory primer, excluding thermoplastic coating
- ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit

### Base, preparation

- Carefully clean using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any rust spots and sand any transitions to old paint.



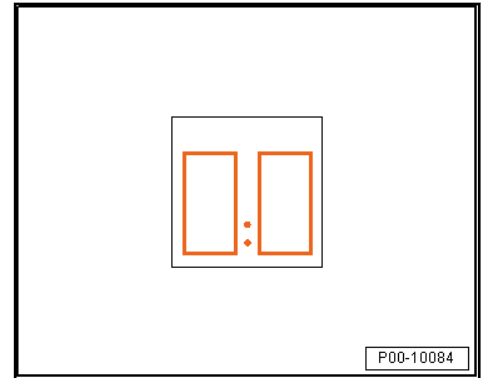
- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



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### Mixing ratio

1:1 by volume with Two-Part Additional Solution LHA 004 000 A2.

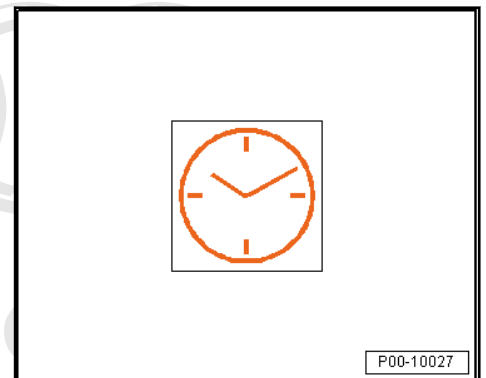


### Processing

Adjustment for spraying 8 to 10 hours at +20 °C (68 °F).

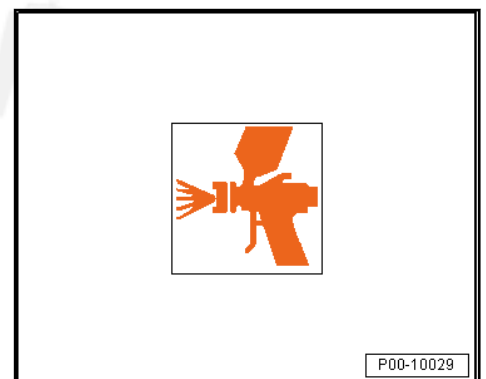
Condition

- Mixed two-part wash primer must be used the same day.



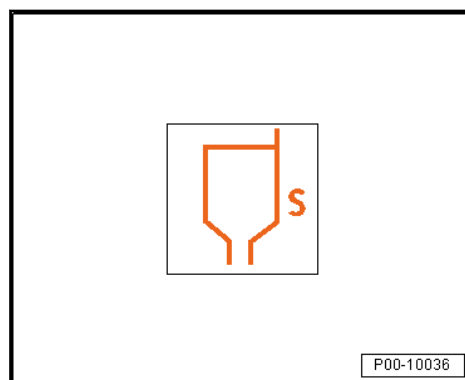
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- Perform the application type coat.



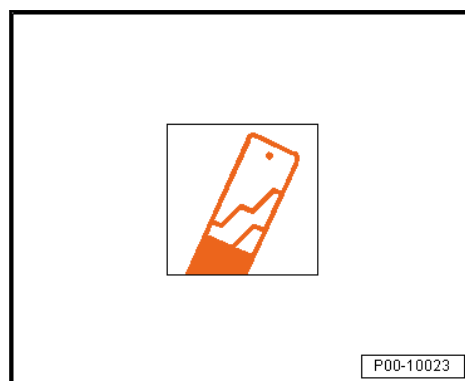
## Processing viscosity

Processing viscosity 4 mm for +20 °C (68 °F), German Industry Standardization 53211 is the mixed viscosity.



Processing viscosity 4 mm gravity feed spray gun “Compliant” and “HVLP”:

DIN 4 mm: 16 to 18 seconds

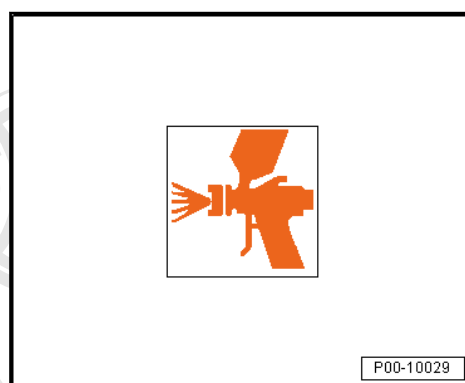


## Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.4 mm	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	1.3 - 1.5 mm		0.7 bar (10.15 psi)

The prescribed dry layer thickness is 8 to 12 µm.



## Drying

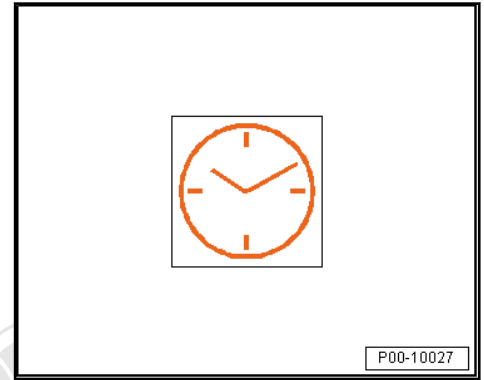
Condition

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- Due to possible adhesion impairment, forced drying and IR drying are not possible.

Air drying at +20 °C (68 °F) room temperature.

Can be recoated after 30 minutes.



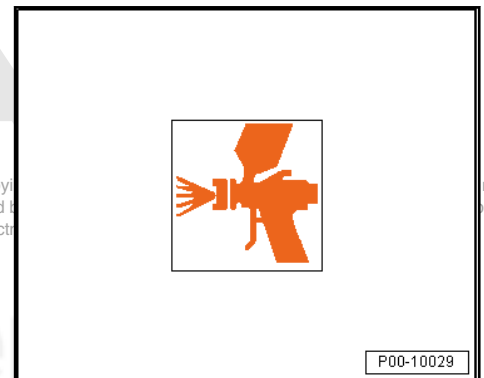
### Reworking

Can be sprayed over with two-part HS filler at +20 °C (68 °F) after flash-off time.

Can be painted over with:

- ◆ Water-based base paint and two-part HS clear coat
- ◆ Two-Part HS Top Coat

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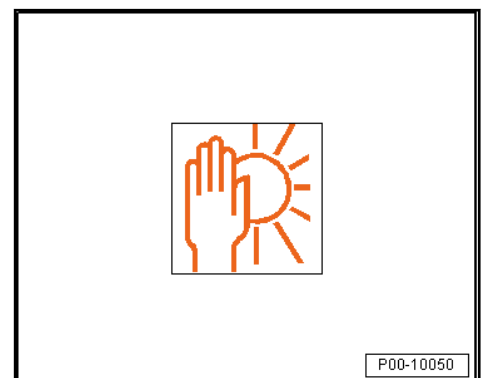
not  
safety

## 4.2.4 Zinc Spray

### Storage

Guaranteed shelf life of 18 months from production date.

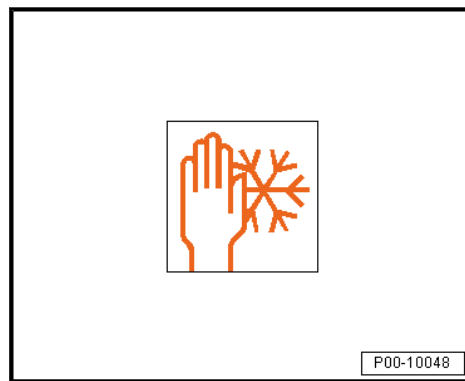
Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).





## Storage Conditions

- ◆ Optimal storage temperature is +10 °C to +25 °C (50 °F to 77 °F)
- ◆ Do not warm above +50 °C (122 °F)
- ◆ Store in a cool and dry place
- ◆ Not frost-susceptible



## Product Description

The Zinc Spray D 007 500 A2 provides an optimal corrosion protection on iron and steel, due to its electrochemical interaction.

Sprayable zinc-rich corrosion protection primer in a spray can.  
Base: zinc with epoxy binding agent.

The dried film adheres well to cleaned metal parts and has excellent abrasion resistance properties and electrical conductivity while dry.

Because of its self-repair properties, zinc-spray can reseal minor damage and therefore also provide long-lasting protection for steel surfaces.

## Application

Zinc-Spray D 007 500 A2 is used in body repairs, to “re-zinc” welding and cutting areas of galvanized parts, especially ones which are not repainted.

Serves as corrosion protection between welding flanges when MIG-welding or spot welding with a dry layer thickness of 20 - 30 µm.

It is especially used if there are high requirements for corrosion protection and mechanical workability.

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## Technical Data

Color	Gray	
Odor	Solvent	
Density	1.0 g (0 oz)/cm <sup>3</sup>	
Drying time	Air drying	Dust-dry 30 minutes
		Grip-dry 60 minutes
		Fully hardened 12 - 24 hours

	Oven drying	Flash-off time: 10 minutes Burn-in time 30 minutes Burn-in temperature 60 - 80 °C (140 - 176 °F)
Corrosion resistance salt spray test, according to DIN 50021, 35 °C (95 °F), saline solution 5%, 1000 hours	Does not corrode	
Dry layer thickness	50 µm	
Adhesive strength, according to DIN 53151, cross-cut value: GT 0-1, cleaning	Cleaner for Plastic Repairs D 195 850 A1	
Application temperature and temperature resistance	-50 °C to 500 °C (-58 °F to 932 °F), paint layer hardened	

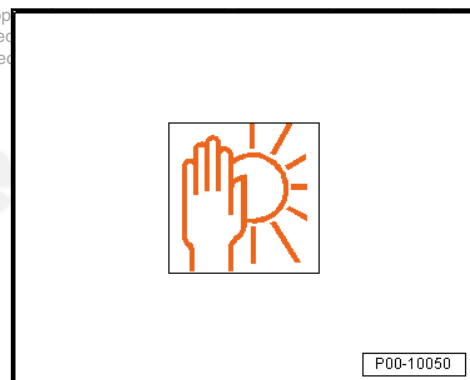
## Processing

Before starting to apply, it is necessary to read the safety precautions and advice in the safety data sheet.

Even for products which are not required to be labeled by law, the usual safety precautions must be observed for chemical emissions.

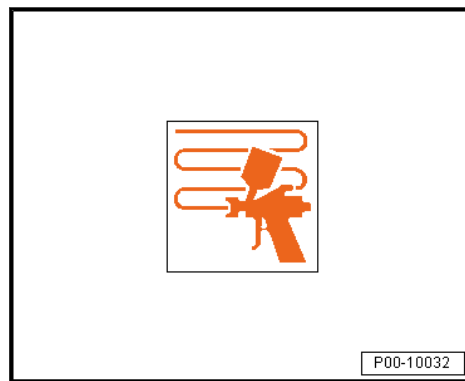
Zinc-spray should not be used under 10 °C (50 °F) and above 80 °C (176 °F) relative humidity.

The temperature of the metal surface should not exceed 30 °C (86 °F), but at the same time the metal temperature must be at least 3 °C (37.4 °F) above the dew point.



- In cases that require a recoating, perform a paint test on the dried zinc-spray coating to determine the compatibility.

Good results can be achieved by using a one-part top coat.



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### Cleaning

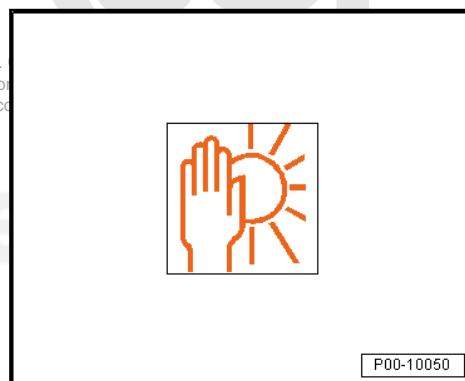
Pay attention: solvents may dissolve paint.

- Immediately remove spots using acetone or teroson FL.



- Zinc-spray must be at room temperature when used.

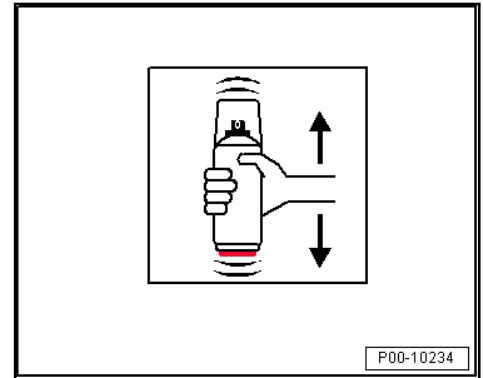
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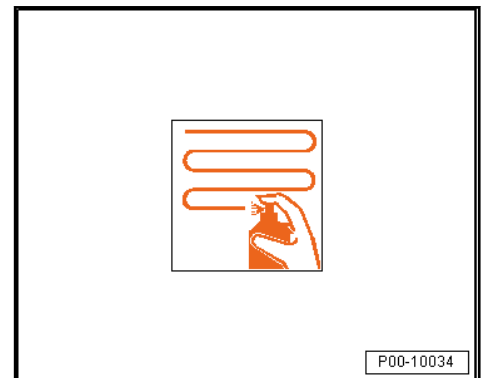
### Spray can

- Shake the spray can thoroughly.
- Once the ball movement can be heard, continue to shake for one minute.



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- Hold the spray can vertically when spraying and spray two to three cross movements, from a distance of 20 to 30 cm.
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.
- Dispose of the empty spray cans as recyclable material.



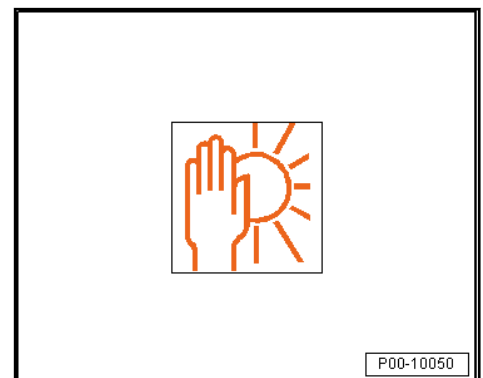
## 4.2.5 The Right Primer for each Repair

### Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

### Storage Conditions



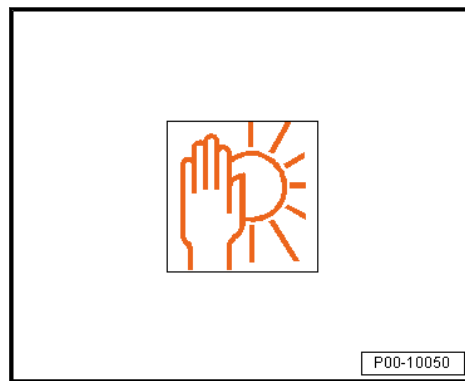


◆ The optimal storage temperature is +20 °C (68 °F).

◆ Store in a cool and dry place

#### Primer

	Two-Part Wash Primer LHV 043 000 A2 for the highest-quality repair body warranty	One-Part Wash Primer LVM 044 007 A2 for sanded through areas
Suitable base surfaces		
Steel	xxx	x
Galvanized sheet steel	xxx	x
Aluminum	xxx	x
Body corrosion protection with two-part HS filler	Excellent	Not acceptable
Direct reworking with filler after flashing-off	Possible after 30 minutes	Possible after 10 to 15 minutes
Can be sanded when dry	No	No
Can be wet sanded	No	Yes, after 45 to 60 minutes
Direct reworking with Aquaplast system/Aquapremium system only for sanded through areas with a diameter of 5 cm.	No	Yes, after 20 to 30 minutes
Direct reworking with Two-Part Solid Top Coat L2K 073 ... Two-Part HS Mixed Paint L2K 074 ...	No	Possible after 10 to 15 minutes



## 4.3 Plastic Primer

⇒ [“4.3.1 Bonding Agent”, page 80](#)

⇒ [“4.3.2 Two-Part Plastic Adhesive Filler”, page 83](#)

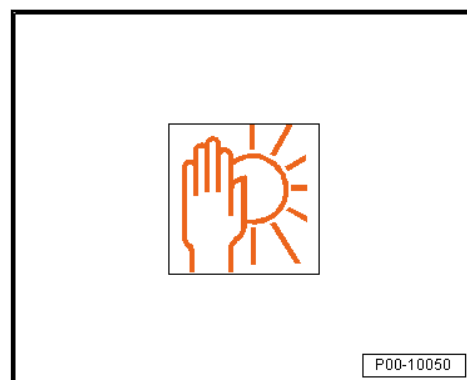
### 4.3.1 Bonding Agent

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## Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Product Description

The transparent Bonding Agent LVM 823 000 A2 can be used directly on uncoated plastic. It offers excellent bonding on critical plastic components of passenger vehicles.

- ◆ Offers excellent bonding on passenger vehicle plastic exterior parts.
- ◆ Can be used directly on degreased uncoated plastic.
- ◆ Is ready for use.
- ◆ Radar-compatible.

Painted plastic parts may not be cleaned with a high-pressure cleaner before six weeks have passed. The minimum distance between the nozzle and the object is 30 cm.

## Suitable base surfaces

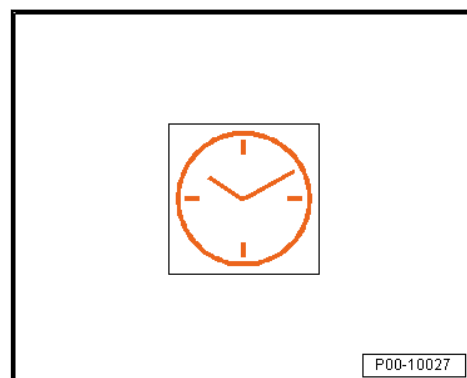
All standard plastic parts used on car exteriors.

- ◆ PP, EPDM, ABS, PC, PPO, PA, R-TPU, PBTP, PVC
- ◆ PUR, PUR soft foam
- ◆ UP-GF

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## Base, preparation

- Before cleaning the plastic parts, temper them for 60 minutes at +60 °C (140 °F) to "sweat out" the separating agents.



Use an ultra-fine sanding pad soaked in LVM 020 100 silicone remover for the pre-cleaning / use a towel wet with LVM 020 100 silicone remover for cleanup.

Wipe the surface to loosen and remove impurities. Immediately wipe with a clean towel.

Change the towels often. Do not use any dirty towels.

Thoroughly remove all traces of separating agents.

- Repairs at cleaned and sanded vehicle exterior plastic parts.

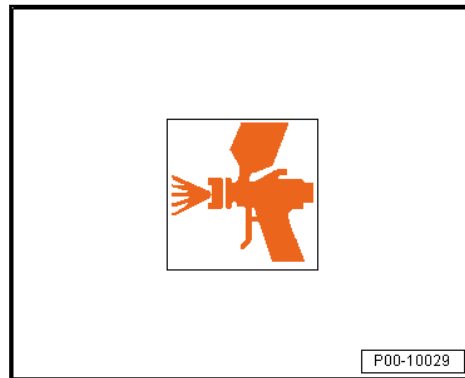
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### Washer nozzle and spray pressure

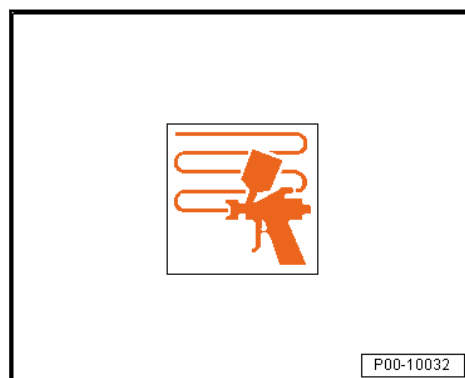
- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.3 mm	1.5 - 2.0 bar (21.76 - 29.01 psi)	
HVLP	1.3 - 1.4 mm		0.7 bar (10.15 psi)



### Spray application

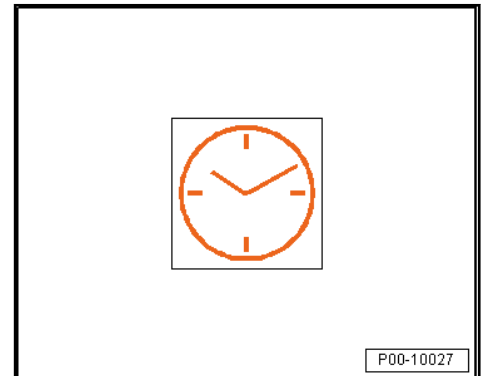
- One to two spray applications
- ◆ With intermediate drying time: five minutes.
- ◆ Final flash-off time: 10 to 15 minutes.



### Drying

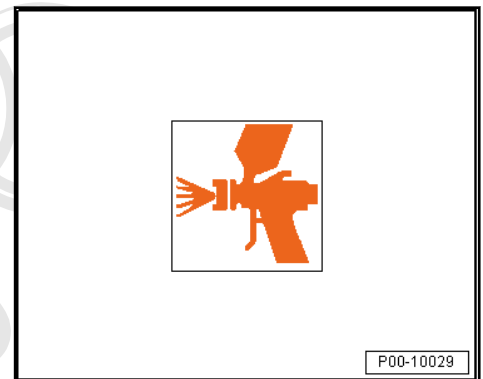
Air drying at +20°C (68 °F) room temperature.

Final flash-off time: 10 to 15 minutes.



### Reworking

Can be sprayed over with two-part HS filler elasticized with two-part elastic additive ALZ 011 001.



## 4.3.2 Two-Part Plastic Adhesive Filler

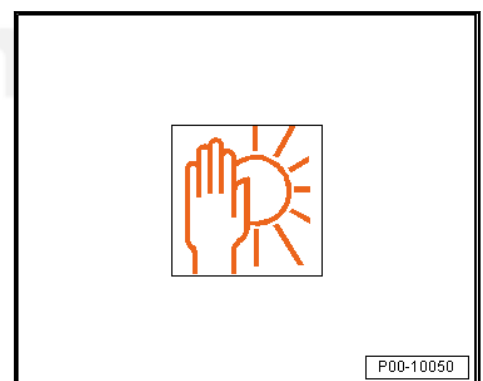
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### Storage

Guaranteed shelf life of 24 months from production date.

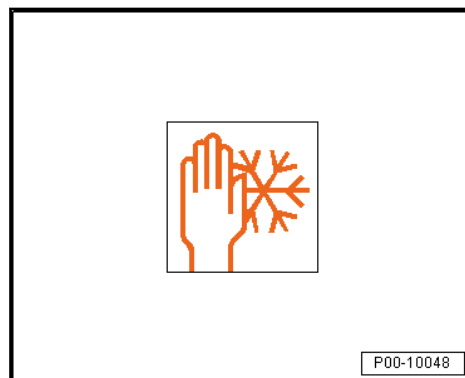
- ◆ Two-part plastic adhesive filler, white - LKF 696 009 A2
- ◆ Two-part plastic adhesive filler, black - LKF 696 040 A2

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### Storage Conditions

- ◆ The optimal storage temperature is +20 °C (68 °F).
- ◆ The temperature must not fall below +5 °C (41 °F)
- ◆ If there was frost, then the adhesive filler must be warmed to +20 °C (68 °F) in order for it to be fully functional.



### Characteristics

Delivery Viscosity	Two-Part Adhesive Filler Hardener	11 seconds
	Two-Part Plastic Adhesive Filler	100 seconds
Flashpoint		above +23 °C (73.4 °F)

### Product Description

Two-Part Plastic Adhesive Filler  
LKF 696 009 A2/LKF 696 040 A2 is a high-quality two-part primer filler for plastic parts.

Two-part plastic adhesive fillers are classified according to the regulation (EG) No. 1272/2008 (CLP).

- ◆ Adhesion on all standard vehicle plastic parts
- ◆ Can be used wet-on-wet
- ◆ Efficient coating system
- ◆ Easy to handle
- ◆ Very long working time

#### Condition

- Painted plastic parts may not be cleaned with a high-pressure cleaner before six weeks have passed. The minimum distance between the nozzle and the object is 30 cm.

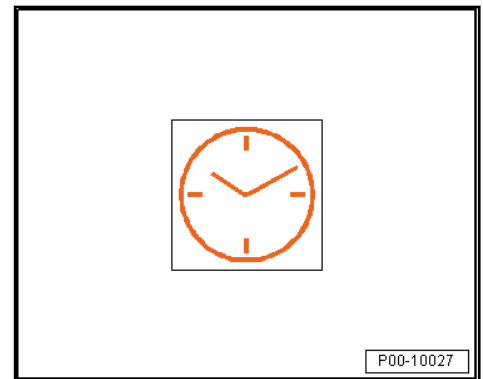
### Suitable base surfaces

All standard plastic parts used on car exteriors.

- ◆ PP, PP/EPDM, ABS, SAN, PC, PA, PUR-RIM, R-TPU, TPO, PBTP. PUR, PUR-soft foam, UP-GF

### Base, preparation

- Before cleaning the plastic parts, temper them for 60 minutes at +60 °C (140 °F) to "sweat out" the separating agents.



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### Condition

- The base surface must be free of separating agents.

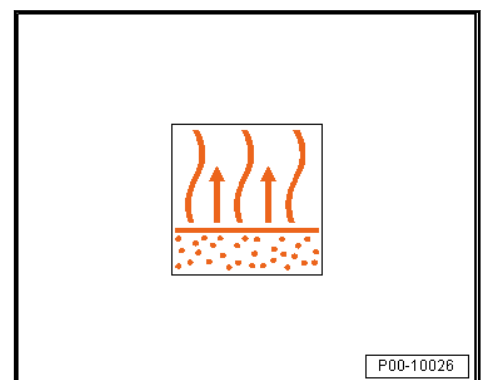
The effort needed for cleaning depends on the type and quantity of the separating agent used.

It is recommended to use a sanding pad 3M 7448 to support the cleaning process.

- Clean using Antistatic Plastic Cleaner LVM 001 001 A2 or a milder Silicone Remover, Long LVM 020 100 A5.



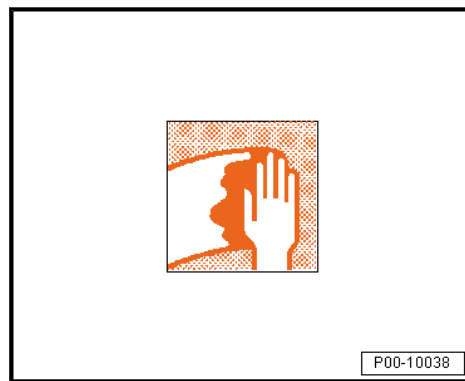
- Let the thinner evaporate, for example, air-drying overnight at room temperature or 30 to 40 minutes at +60 °C (140 °F).



### Condition

- The base surface must be free of separating agents.

- Before the application of two-part plastic adhesive filler, slightly clean it again, using Antistatic Plastic Cleaner LVM 001 001 A2 or Silicone Remover, Long LVM 020 100 A5, with antistatic effect.



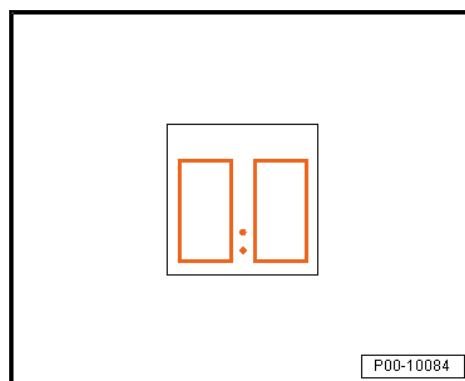
### Mixing ratio

#### Condition

- Do not add a thinner.

The mixture is ready to be sprayed after adding hardener.

Mixture ratio is 1:1 by volume with Two-Part Adhesive Filler Hardener LHA 005 000 A2.



#### Working time/pot life:

- ◆ Adjustment for spraying 7 to 9 hours at +20 °C (68 °F)



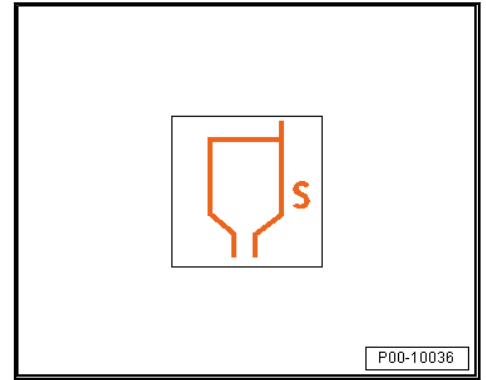
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Processing viscosity +20 °C (68 °F) material temperature:

- ◆ DIN 4 mm: 16 to 18 seconds
- ◆ ISO 4 mm: 37 to 45 seconds.

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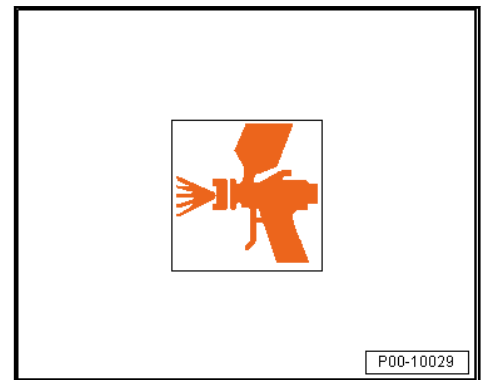
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### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

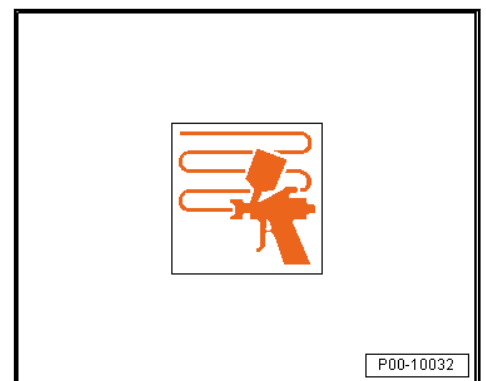
	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HLVP	1.4 - 1.5		0.7 bar (10.15 psi)



### Spray application

- 1. Application: Apply one spray application.
- 2. Application: Followed by one normal spray application.

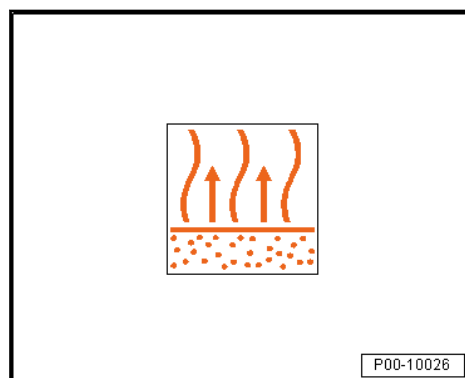
The specified dry layer thickness is 25 - 30 µm.





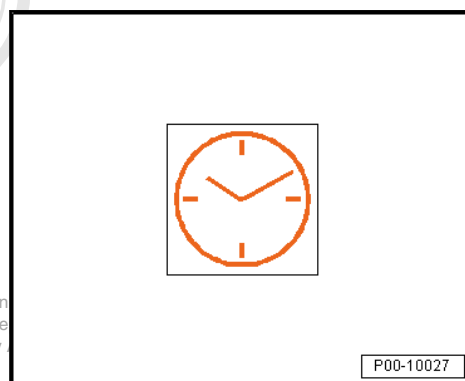
## Drying

Flash-off at +20 °C (68 °F) room temperature for 15 to 20 minutes.



Air drying at +20 °C (68 °F) room temperature.

Can be painted over wet-on-wet after 15 - 20 minutes, up to 24 hours, with suitable top coat



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## Grinding



If needed, it can be lightly sanded with P 800 to 1000 grit wet sandpaper after drying for 30 minutes at +60 °C (140 °F) object temperature or after two hours at +20 °C (68 °F) room temperature.

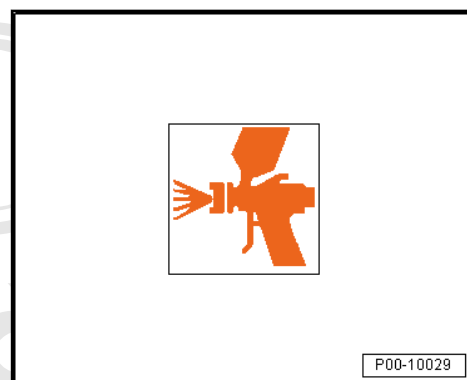
## Further processing

Any faults in the base surface can be filled in with Fine Filling Paste LSP 784 002 A2 2K after it has dried.

Filler patches must be insulated with two-part plastic adhesive filler before applying the top coat.

Can be painted over with:

- ◆ Water-based base paint and two-part HS clear coat
- ◆ Two-Part HS Top Coat



## 4.4 Filler

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⇒ [“4.4.1 Two-Part HS Premium Filler”, page 89](#)

⇒ [“4.4.2 Two-Part HS Performance Filler”, page 97](#)

⇒ [“4.4.3 Two-Part HS Wet-on-Wet Filler”, page 108](#)

⇒ [“4.4.4 Two-Part HS Speed Filler”, page 123](#)

⇒ [“4.4.5 The Right Filler for each Repair”, page 132](#)

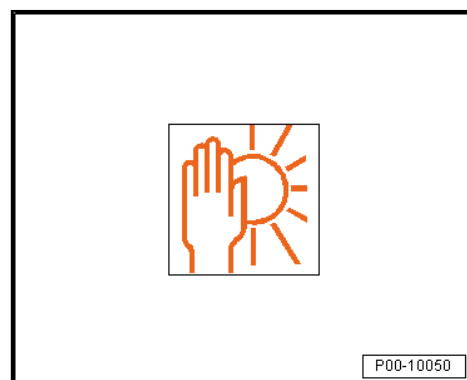
### 4.4.1 Two-Part HS Premium Filler

#### Storage

Guaranteed shelf life of 24 months from production date.

- ◆ Two-Part HS Premium Filler, light-gray LGF 013 007 A4
- ◆ Two-Part HS Premium Filler, white LGF 013 100 A4
- ◆ Two-Part HS Premium Filler, black LGF 013 190 A4
- ◆ Two-Part HS Premium Filler, dark gray LVM 013 171 A4

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



#### VOC value

Delivery Viscosity	Thixotropic
Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (c) (540) 540	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 540 g (19 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 540 g (19 oz)/l.

The yield was calculated taking into account the recommended layer thickness and the proportion of solid material without thinner.

The corresponding processing losses were not taken into account.

---

### Properties

The two-part premium fillers is a high-quality two-part HS acrylic-resin-based filler.

- ◆ Very long working time
  - ◆ Optimal and stable processing properties
  - ◆ Sands well
  - ◆ Great stability under load
  - ◆ High yield
  - ◆ Excellent high-build characteristics
  - ◆ Excellent paint finish
- 

### Suitable base surfaces

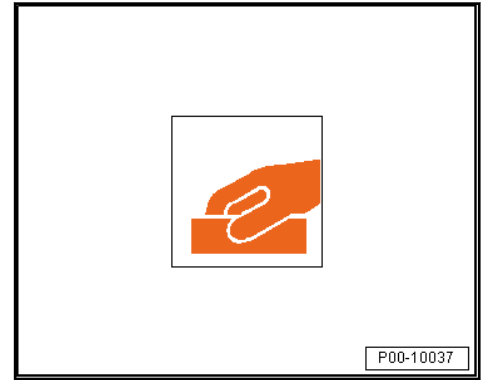
- ◆ Sheet steel that has been cleaned, sanded and primed with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 007/171 A2, only for small sanded-through areas, galvanized/electrolytically zincd sheet steel or soft aluminum
  - ◆ Fine or non-sanded, thoroughly cleaned, original factory primer.  
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  - ◆ Sanded factory paint or old paint, including thermoplastic coatings
  - ◆ Surfaces prepared with two-part polyester products and then sanded very fine.
  - ◆ Cleaned and sanded UP-GF surfaces, free of separating agents
- 

### Base, preparation

- Carefully clean using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Sand the base surfaces.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.

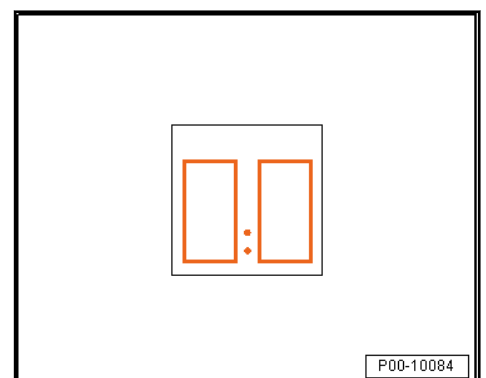


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### Mixing ratio

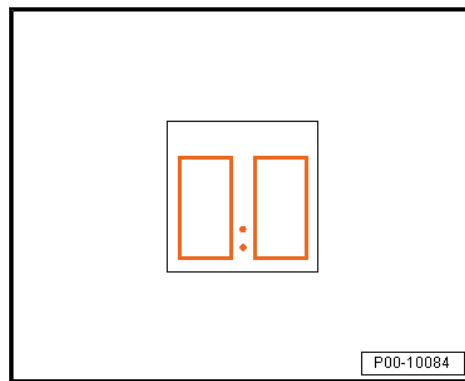
Mixing ratio 4:1 by volume with:

- ◆ Two-Part HS Hardener LHA 009 041 A3
- ◆ Two-Part HS Hardener, Short LHA 021 004 A3
- ◆ Two-Part HS Hardener, Extra Short LHA 009 046 A2
- ◆ Two-Part HS Hardener, Long LHA 009 047 A3
- ◆ Two-Part HS Hardener, Extra Long LHA 009 048 A3



Mixing ratio 7:1 by volume with:

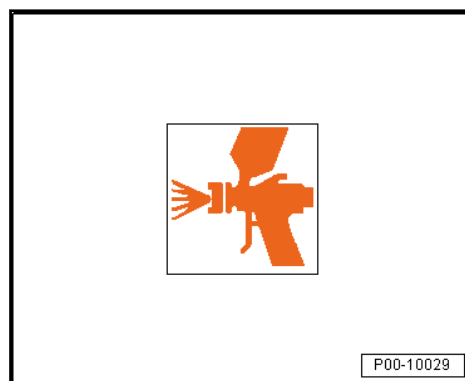
- ◆ Two-Part VHS Hardener, Short LHA 009 050 A2
- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2
- ◆ Two-Part VHS Performance Hardener LVM 009 038 A2
- ◆ Two-Part VHS Performance Hardener, Long LVM 009 039 A2



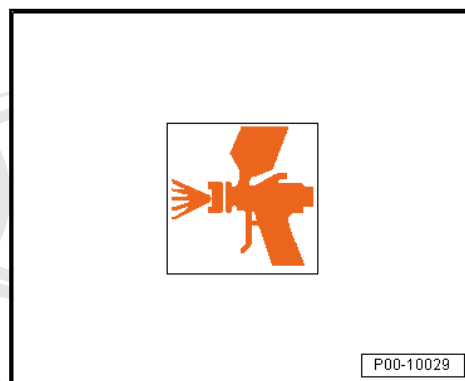
## Processing

Working time/pot life:

- Note that it is ready to spray 90 to 120 minutes at +20 °C (68 °F), depending on the hardener and thinner used.
- ◆ Two-Part Thinner LVE 009 001 A5
- ◆ Two-Part Thinner, Long LVM 009 300 A2
- ◆ Two-Part Thinner, Plus LHA 014 000 A5
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5



- Perform the application type coat.

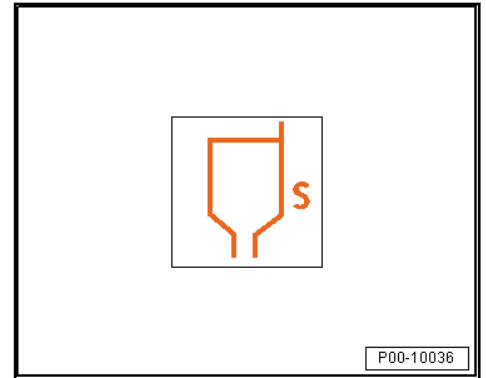


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### Processing viscosity

- Note the processing viscosity 4 mm for +20 °C (68 °F), German Industry Standardization 53211.

Working viscosity 4 mm gravity feed spray gun “Compliant” and “HVLP” is the mixed viscosity.



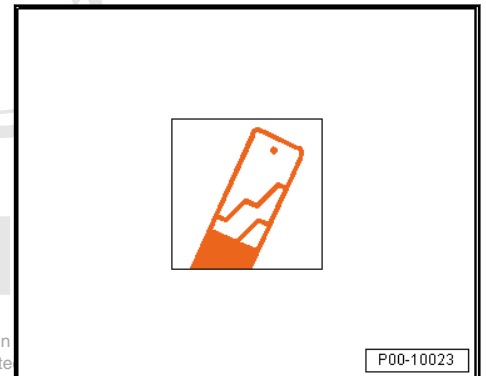
### Thinner

- Note the addition of hardener of 10% VHS-hardener at +20 °C (68 °F) material temperature.

Adding HS hardener is not necessary. But it is possible to add up to 10%.

#### Condition

- Use a measuring stick to mix when pouring in the thinner.

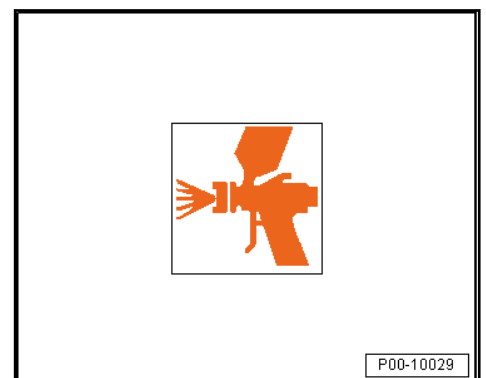


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### Washer nozzle and spray pressure

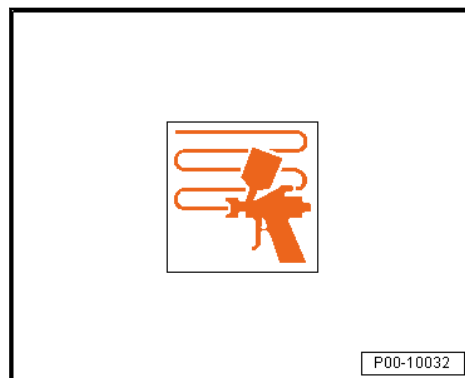
- Adjust nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.4 - 1.7	1.8 - 2.2 bar (26.11 - 31.91 psi)	
HVLP	1.4 - 1.7		0.7 bar (10.15 psi)



## Processing

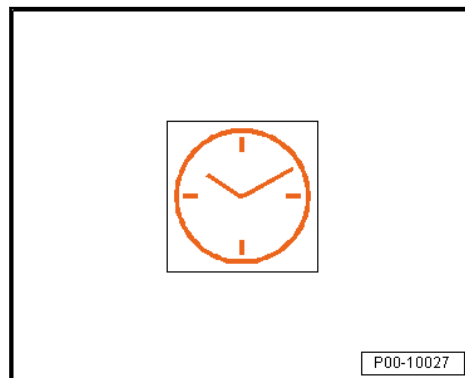
- To reach the specified dry layer thickness of 80 to 300 µm, apply three spray applications including intermediate flash-off times.
- ◆ When air drying, the maximum dry layer thickness is 300 µm.
- ◆ When forced air drying, the maximum dry layer thickness is 250 µm.
- ◆ When IR drying, white and light gray color, the maximum dry layer thickness is 200 µm.
- ◆ When IR drying, black color, the maximum dry layer thickness is 180 µm.
- ◆ The recommended dry layer thickness is between 80 and 200 µm.



## Drying

The two-part premium filler can be sanded after three to four hours.

- ◆ Layer thickness of 80 - 150 µm
- ◆ Air drying at +20 °C (68 °F) room temperature



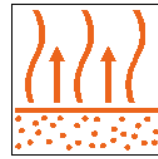
If layer thicknesses of 150 - 250 µm were applied, let dry overnight and then sand.



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The final flash-off time when forced drying is reached when the surface is matte.

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P00-10026

Forced drying at +60 to 65 °C (140 to 149 °F) object temperature for 30 to 40 minutes for a layer thickness of between 80 and 150 µm; 40 minutes for a layer thickness of between 150 and 250 µm



P00-10027

When IR drying, depending on layer thickness, use the short-wave radiator for 5 minutes at 50% power and 15 minutes at 100% power

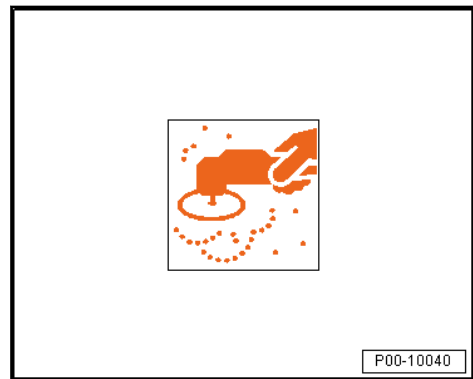


P00-10028



## Grinding

- Perform dry sanding using a rotary sander, with P360 to P500 dry sanding paper and dust extraction.



- Or wet-sand with P800 to 1000 grit wet sandpaper.

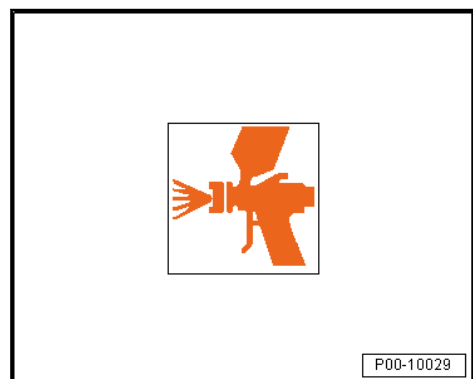


## Further processing

Can be painted over with:

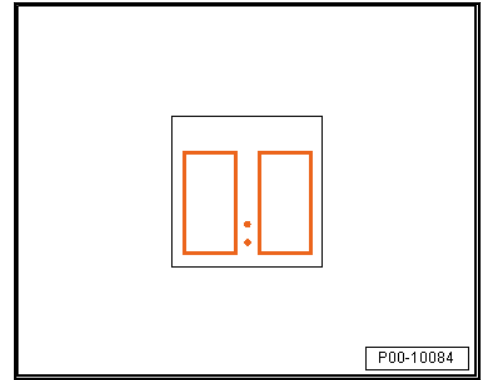
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- ◆ Water-based base paint and two-part HS clear coat
- ◆ Two-Part HS Top Coat



Elastification for rigid and semi-rigid plastics:

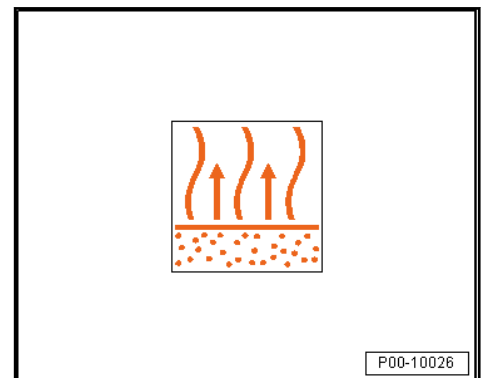
- First, mix the base material with 15% Two-Part Elastic Additive ALZ 011 001.
- Mix at a mixture ratio of 3:1 with HS hardeners, without thinning.
- Mix at a mixture ratio of 4:1 with VHS hardeners and 5 % thinning.



- Any faults in the base surface can be filled using two-part polyester filler paste.
- Perform an insulation of the filler patches with two-part VHS performance filler, after drying and intermediate sanding.



- The best insulating effect, even with critical surfaces, is achieved with a medium layer of 80 to 120 µm in two spray passes, with air-drying overnight, or oven or IR drying.
- With critical surfaces, fine preparation is required and the parts must be evenly filled.



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#### 4.4.2 Two-Part HS Performance Filler



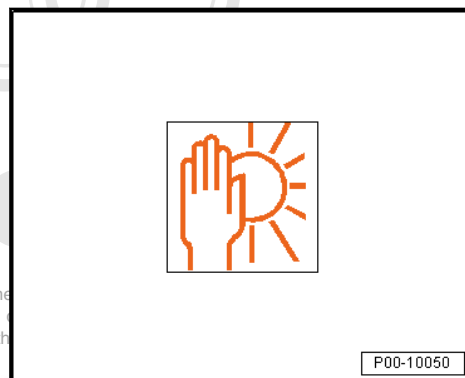
## Storage

Guaranteed shelf life is:

- ◆ Two-Part HS Performance Filler LVM 014 ... 24 months from the production date.
- ◆ Two-Part VHS Performance Hardener LVM 009 038 A2, 12 months from production date.
- ◆ Two-Part VHS Performance Hardener, Long LVM 009 039 A2, 36 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

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## VOC value

Delivery Viscosity	Thixotropic
Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (c) (540) 540	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 540 g (19 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 540 g (19 oz)/l.

The yield was calculated taking into account the recommended layer thickness and the proportion of solid material without thinner.

The corresponding processing losses were not taken into account.

## Properties

The two-part performance filler LVM 014 ..., is a high-quality two-part HS acrylic-resin-based filler.

- ◆ Dries quickly
- ◆ Very good spray mist characteristics
- ◆ Great stability under load
- ◆ Sands very well
- ◆ High solid content provides a high yield

## Suitable base surfaces

- ◆ Cleaned and sanded with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 ... A2, only for small areas that have been sanded through, primed steel panels, galvanic/electrolytic galvanized steel panels or soft aluminum

- ◆ Fine or non-sanded, thoroughly cleaned, original factory primer.
- ◆ Sanded factory paint or old paint, except TPA
- ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit
- ◆ Cleaned and sanded UP-GF surfaces, free of separating agents.

### Base, preparation

- Carefully clean using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Sand the base surfaces.

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- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.





## Processing

Stirring the Two-Part HS Performance Filler LVM 014 ... in the mixer is recommended.

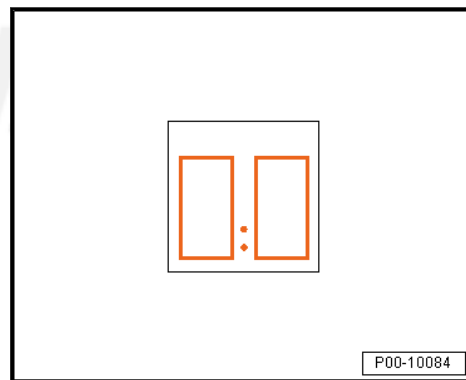
## Condition

- Pay attention to the country-specific explosion protection guidelines.

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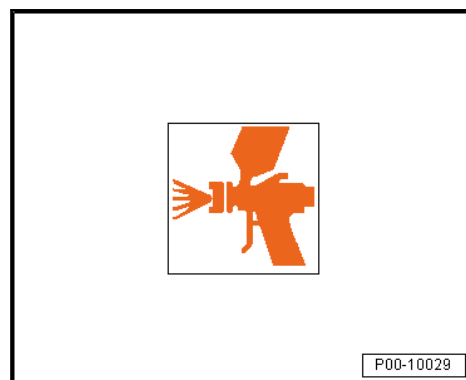
- Create the mixture ratio of 5:1 using:
  - ◆ Two-Part VHS Performance Hardener LVM 009 038 A2
  - ◆ Two-Part VHS Performance Hardener, Long LVM 009 039 A2
  - ◆ For very high technological resistance

Measuring by weight is possible with the Wizard Plus.

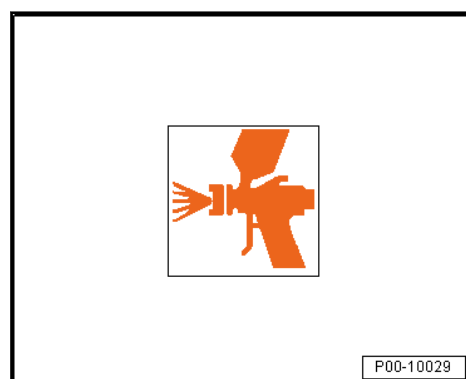


## Working time/pot life:

- Note that it is ready to spray 90 to 120 minutes at +20 °C (68 °F), depending on the hardener and thinner used.
  - ◆ Two-Part Thinner LVE 009 001 A5
  - ◆ Two-Part Thinner, Long LVM 009 300 A2
  - ◆ Two-Part Thinner, Plus LHA 014 000 A5
  - ◆ Two-Part Thinner, Special LVM 009 200 ...



- Perform the application type coat.

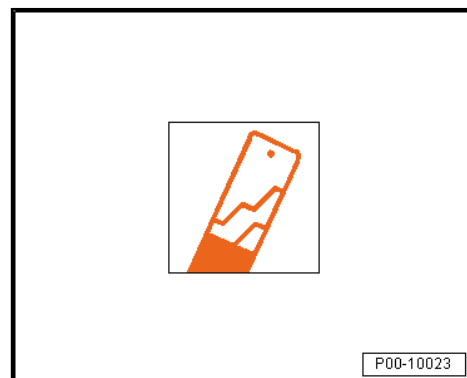


### Thinner

- Make sure to add 10-15% thinner at +20 °C (68 °F) material temperature.

### Condition

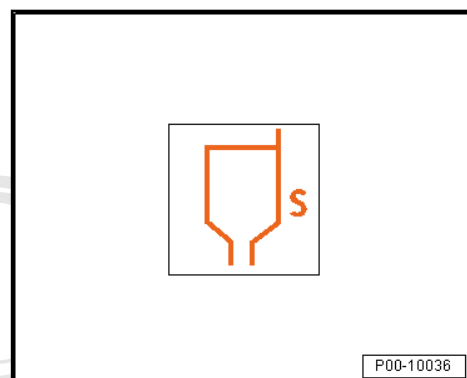
- Use a measuring stick to mix when pouring in the thinner.



### Processing viscosity

- Note the processing viscosity 4 mm for +20 °C (68 °F), German Industry Standardization 53211.

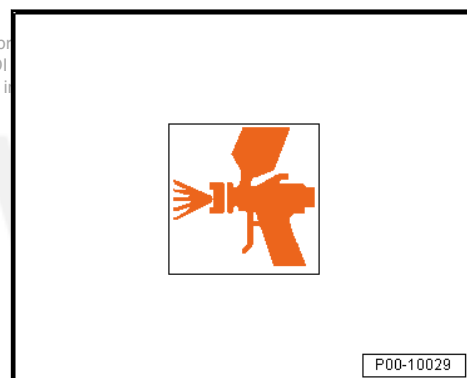
Working viscosity 4 mm gravity feed spray gun “Compliant” and “HVLP” is the mixed viscosity.



### Washer nozzle and spray pressure

- Adjust nozzle and spray pressure according to the manufacturer information.

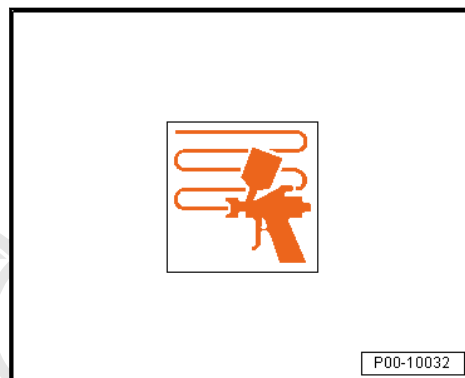
	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.6 to 1.8	1.5 - 2.0 bar (21.76 - 29.01 psi)	
HVLP	1.7 - 1.9		0.7 bar (10.15 psi)





## Processing

- To reach the specified dry layer thickness of 60 to 250 µm, apply one to three spray applications, including intermediate flashing-off times.

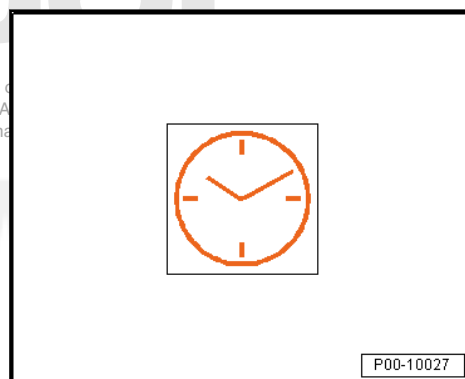


## Drying

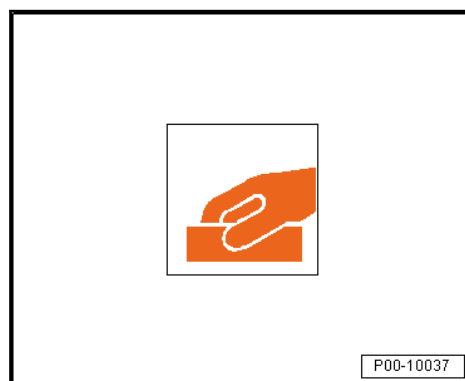
The two-part performance filler can be sanded after two to three hours.

- ◆ Layer thickness of 60 - 150 µm
- ◆ Air drying at +20 °C (68 °F) room temperature

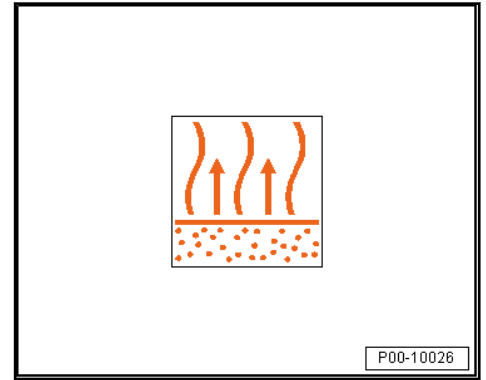
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If layer thicknesses of 150 - 250 µm were applied, let dry overnight and then sand.

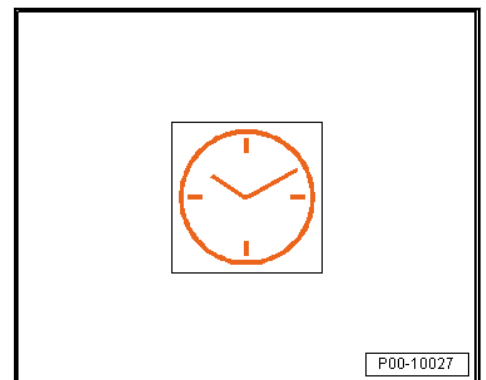


The final flash-off time with forced drying is a minimum of 5 to 15 minutes.

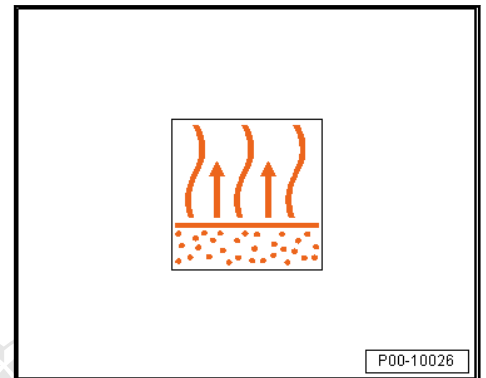


Drying time at +60 to 65 °C (140 to 149 °F) object temperature:  
60 - 150 µm, 15 to 20 minutes.

Drying time at +60 to 65 °C (140 to 149 °F) object temperature:  
150 - 250 µm, 25 minutes.



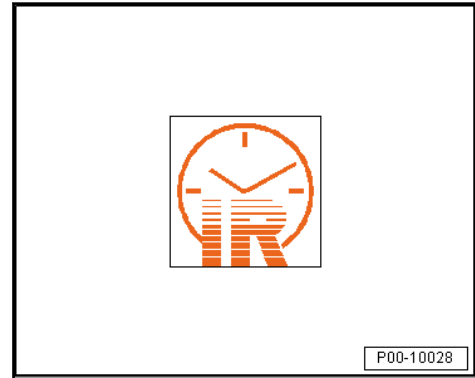
Final flash-off time for IR drying is a minimum of 5 to 10 minutes.





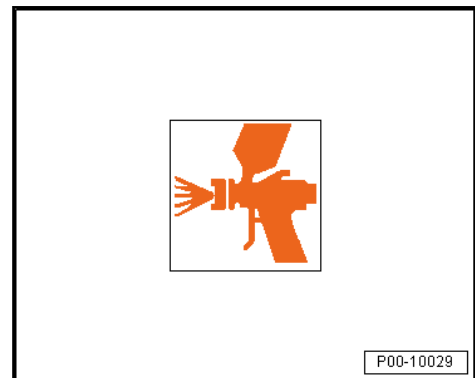
The drying time for 60 to 250 µm, with a short wave radiator is 10 minutes. Thereof:

- ◆ Two minutes at 70 °C (158 °F)
- ◆ 8 minutes at maximum 90 °C (194 °F)

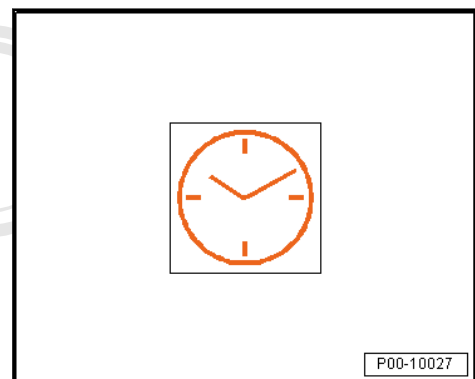


#### Use of two-part HS performance filler under filling paste

- Perform the application type coat.
- To reach the specified dry layer thickness of maximum 120 µm, apply one to two spray applications, including intermediate flashing-off times.



- Mind the drying time at +60 °C (140 °F) object temperature, maximum 120 µm, 45 minutes



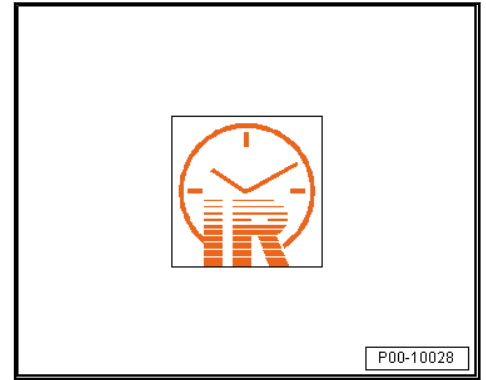
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- Pay attention to the drying time.

The drying time for maximum 120 µm, with a short wave radiator is 17 minutes. Thereof:

- ◆ Two minutes at 70 °C (158 °F)
- ◆ 15 minutes at maximum 90 °C (194 °F)



### Grinding

- After drying, dry-sand the filler by hand with P180 - 220 grit sandpaper.



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- Perform dry sanding using a rotary sander, with P400 to P600 dry sanding paper and dust extraction.





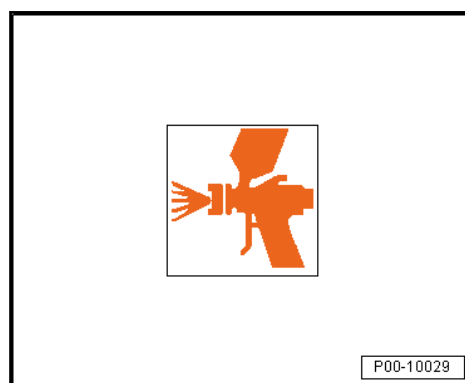
- Or wet-sand with P800 to 1000 grit wet sandpaper.



### Further processing

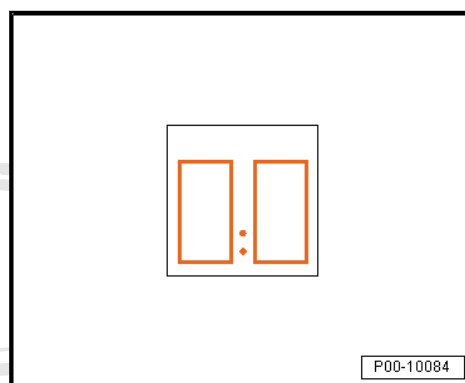
Can be painted over with:

- ◆ Water-based base paint and two-part HS clear coat
- ◆ Two-Part HS Top Coat



Elastification for rigid and semi-rigid plastics:

- First, mix the base material with 15% Two-Part Elastic Additive ALZ 011 001.
- Mix with a 4:1 mixing ratio for VHS performance hardeners and 10% thinner.

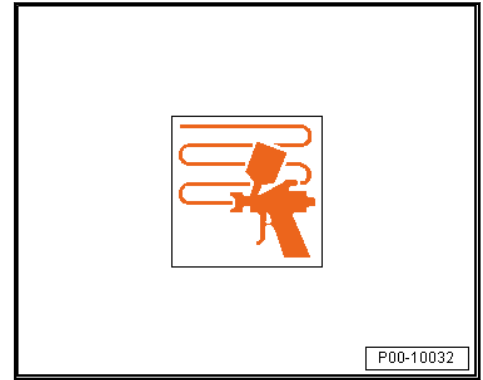


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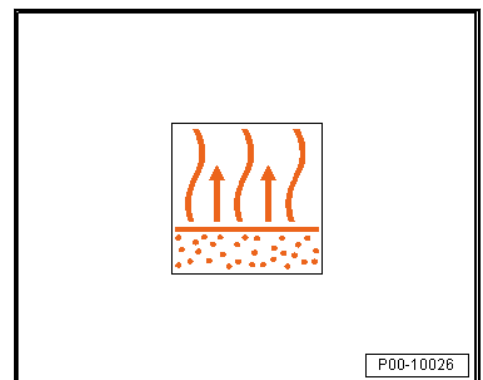
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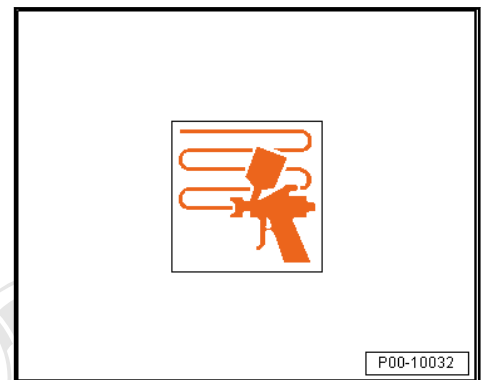
- Any faults in the base surface can be filled using two-part polyester filler paste.
- Perform an insulation of the filler patches with two-part VHS performance filler, after drying and intermediate sanding.



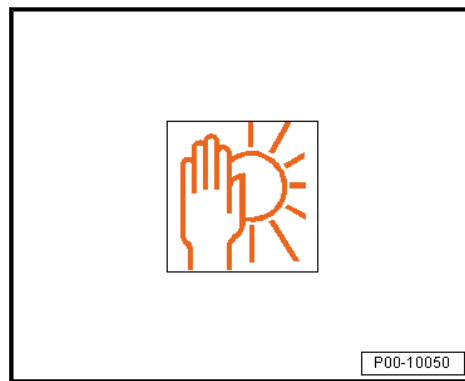
- The best insulating effect, even with critical surfaces, is achieved with a medium layer of 80 to 120 µm in two spray passes, with air-drying overnight, or oven or IR drying.



- With critical surfaces, fine preparation is required and the parts must be evenly filled.



- Air dry at a minimum temperature of +15 °C (59 °F).

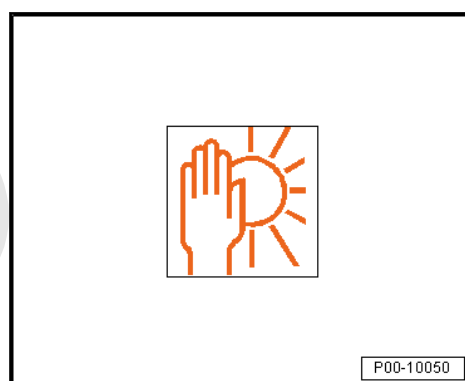


### 4.4.3 Two-Part HS Wet-on-Wet Filler

#### Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



#### Product Description

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Two-Part HS Wet-on-Wet Filler LVM 013 is a universally applicable high solid filler for fair-value based passenger vehicle painting.

- ◆ Suitable for all conventional plastic base surfaces on a passenger vehicle
- ◆ It can be used as wet-on-wet filler and sanding filler.
- ◆ General short waiting period before painting over with water-based paints/top coats, wet-on-wet.
- ◆ Possesses a very good top coat gloss.
- ◆ Available colors: dark gray and black.

#### Product preparation

- ◆ Two-component HS wet-on-wet filler should be at a room temperature of +18 to 25 °C (64.4 to 77 °F) before use.
- ◆ Pay attention to the additional heating time to the object temperature.
- ◆ Wash primer must be applied to uncoated steel panels, galvanized steel panels and soft aluminum.
- ◆ When using wash primer IR drying is not allowed.

- ◆ The filler, in elastified setting, can also be used on bordering surfaces, if they are not made of plastic.
- ◆ When air drying, we recommend a minimum temperature of +15 °C (59 °F).
- ◆ Do not put excess, ready-to-use two-part HS wet-on-wet filler back in the original container.
- ◆ It is not necessary to add Elastic Additive ALZ 011 001.
- ◆ A wet-on-wet filler with a previously applied two-part wash primer is suitable for applications on sanded through areas before reworking these areas with Two-Part Spray Filling Paste ALN 788 007 or Two-Part Polyester Filler Paste DA 787 300 A2.
- ◆ The earliest recoating time can be reached by using a mixture ratio of 3:1 with Two-Part HS Hardener, Extra Short LHA 009 046 + 20% thinning. Even if this hardener is used, the flash-off time before polyester product recoating must be at least 30 to 40 minutes at 20 °C (68 °F).

#### **Suitable base surfaces for application STANDARD WET-ON-WET VHS and STANDARD WET-ON-WET HS**

- ◆ Cleaned and sanded steel panels, galvanized steel panels or soft aluminum, primed with Two-Part Wash Primer LHV 043 000 A2.
- ◆ Fine or non-sanded, thoroughly cleaned, original factory primer CDC.
- ◆ Thoroughly sanded and cleaned old paint or factory paint.
- ◆ Surfaces prepared with two-part polyester products and then sanded very fine and cleaned.
- ◆ Fiberglass-reinforced polyester base surfaces, free of separating agents, sanded and cleaned.

Due to the large amount of cataphoretic coatings CDC available, there are significant quality-differences. This is why it is recommended to sand the cataphoretic coating.

#### **Suitable base surfaces for the application are STANDARD PLASTIC VHS and STANDARD PLASTIC HS**

- ◆ Repairs at cleaned and sanded vehicle exterior plastic parts.

##### **Condition**

- If plastic parts are not factory primed, for example by Skoda, then apply Bonding Agent LVM 823 000 A2 beforehand.

#### **Product preparation for application of STANDARD WET-ON-WET VHS**

Mixing products is not permitted in the VOC guideline.

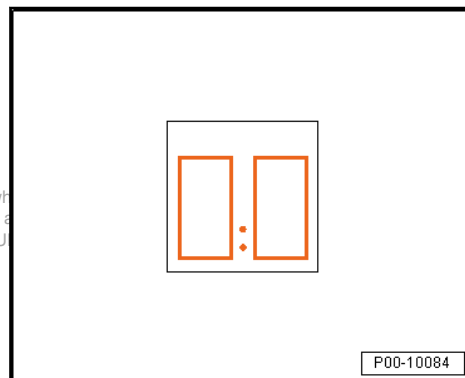
VOC value: 2004/42/II B (c) (540) 540	The EU limit for this product (product category IIB.c) in ready-to-use form is a maximum of 540 g (19 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 540 g (19 oz)/l.
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- Fiberglass-reinforced polyester base surfaces must be free of separating agents as well as be sanded and cleaned.

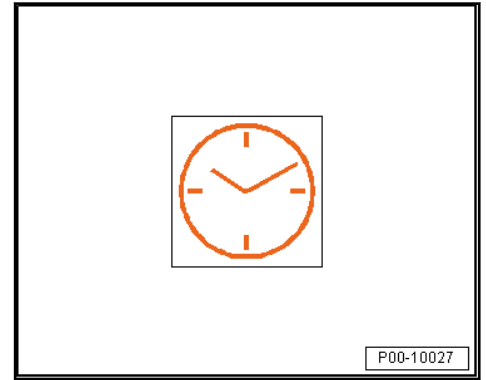


- Pay attention to the mixture ratio:

Filler		Hardener		Thinner	
Vol.	Weight	Vol.	Weight	Vol.	Weight
3	100	1	20	20%	14
Two-Part HS Wet-on-Wet Filler, light gray LVM 013 008 A4 Two-Part HS Wet-on-Wet Filler, black LVM 013 905 A4		Two-Part VHS Hardener LHA 009 050/051/052/053 Two-Part VHS Performance Hardener LVM 009 038 Two-Part VHS Performance Hardener, Long LVM 009 039		Two-Part Thinner LVE 009 001 Two-Part Thinner, Special LVM 009 200 Two-Part Thinner, Long LVM 009 300	

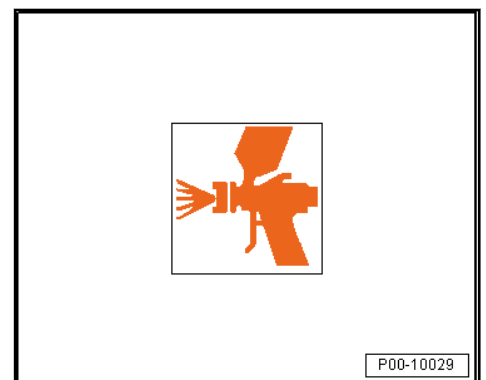


- Pay attention to the working time of 45 minutes to 90 minutes at 20 °C (68 °F)

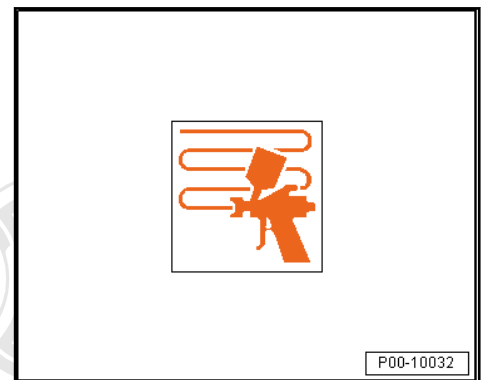


- Adjust nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4	1.5 - 2.0 bar (21.76 - 29.01 psi)	
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)

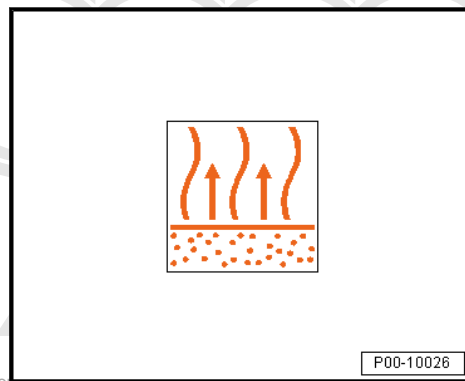


- Perform one to two spray applications.



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- Mind the flash-off time: 15 minutes to 8 hours.



P00-10026

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### Product preparation for application of STANDARD WET-ON-WET HS

VOC value: 2004/42/IIB (c) (540) 540	The EU limit for this product (product category IIB.c) in ready-to-use form is a maximum of 540 g (19 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 540 g (19 oz)/l.
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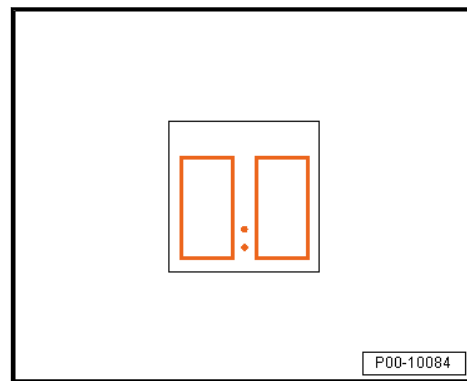
- Fiberglass-reinforced polyester base surfaces must be free of separating agents as well as be sanded and cleaned.



P00-10038

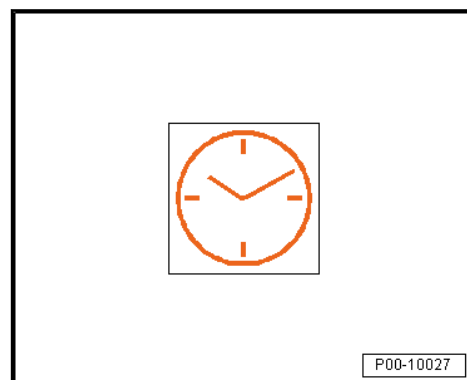
- Pay attention to the mixture ratio:

Filler		Hardener		Thinner	
Vol.	Weight	Vol.	Weight	Vol.	Weight
3	100	1	20	20%	14
Two-Part HS Wet-on-Wet Filler, light gray LVM 013 008 A4		Two-Part HS Hardener, Extra Short LHA 009 046		Two-Part Thinner LVE 009 001	
Two-Part HS Wet-on-Wet Filler, black LVM 013 905 A4		Two-Part HS Hardener, Short LHA 021 004		Two-Part Thinner, Special LVM 009 200	
		Two-Part HS Hardener LHA 009 041		Two-Part Thinner, Long LVM 009 300	
		Two-Part HS Hardener, Long LHA 009 047			
		Two-Part HS Hardener, Extra Long LHA 009 048			



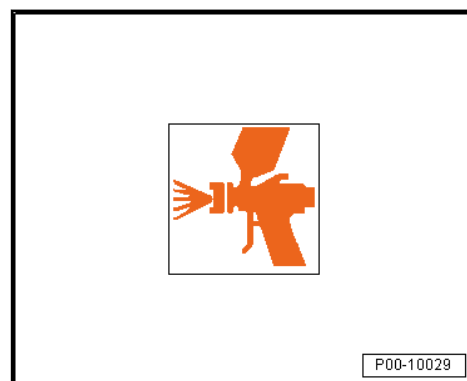
- Pay attention to the working time of 45 minutes to 90 minutes at 20 °C (68 °F)

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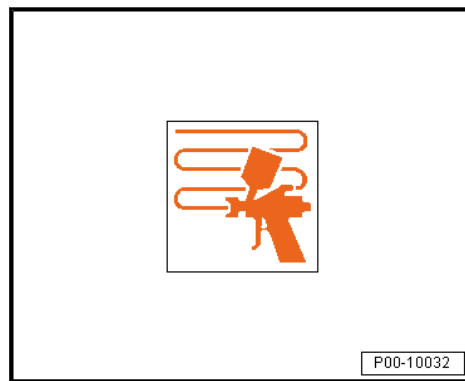


- Adjust nozzle and spray pressure according to the manufacturer information.

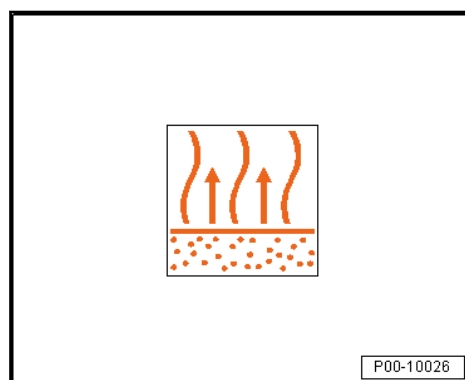
	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4	1.5 - 2.0 bar (21.76 - 29.01 psi)	
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)



- Perform one to two spray applications.

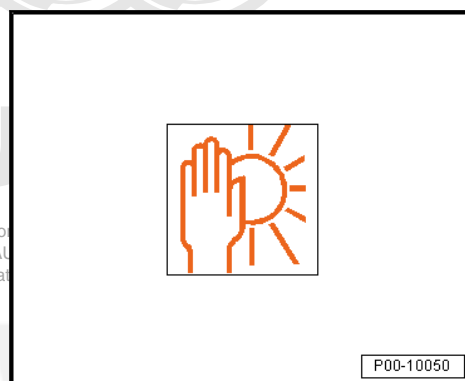


- Mind the flash-off time: 15 minutes to 8 hours.



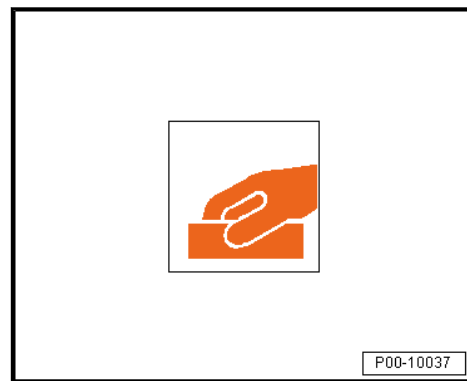
#### Product preparation for the application of STANDARD PLASTIC VHS

- Bring the exterior vehicle plastic new parts to the right temperature for 60 minutes at 60 to 65 °C (140 to 149 °F).



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- For pre-cleaning, use a ultra-fine sanding pad soaked with Silicone Remover, Long LVM 020 100.



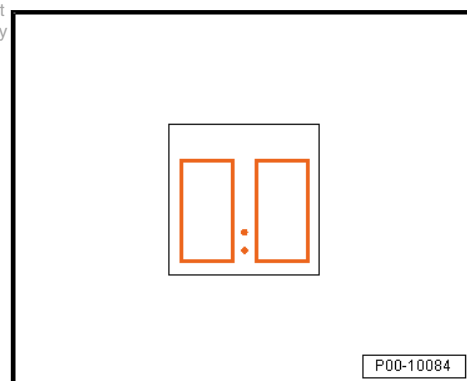
- For post-cleaning, use a towel wet with Silicone Remover, Long LVM 020 100.
- Wipe the surface to loosen and remove impurities. Immediately wipe with a clean towel.
- Change the towels often. Do not use any dirty towels.



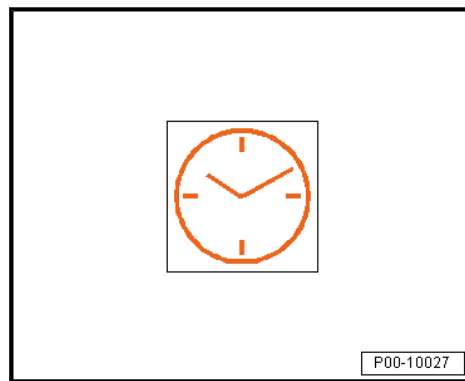
- Pay attention to the mixture ratio:

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Filler		Hardener		Thinner			
Vol.	Weight	Vol.	Weight	Vol.	Weight	Vol.	Weight
5	100	1	13	40%	26	0 - 10%	3 - 7
Two-Part HS Wet-on-Wet Filler, light gray LVM 013 008 A4		Two-Part VHS Hardener LHA 009 050/051/052/053		Plastic Additive LVM 035 120		Two-Part Thinner, Special LVM 009 200 *	
Two-Part HS Wet-on-Wet Filler, black LVM 013 905 A4		Two-Part VHS Performance Hardener LVM 009 038				Two-Part Thinner, Long LVM 009 300 *	
		Two-Part VHS Performance Hardener, Long LVM 009 039					
* if necessary, add 0 to 10% of LVM 009 200/300							

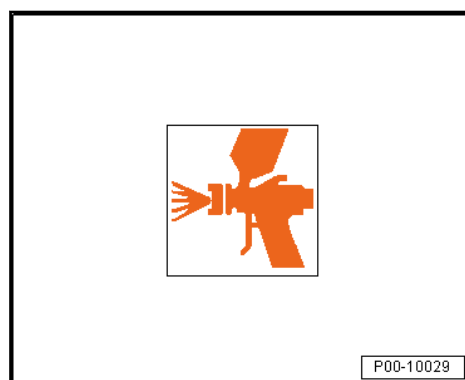


- Pay attention to the working time of 45 minutes to 90 minutes at 20 °C (68 °F)

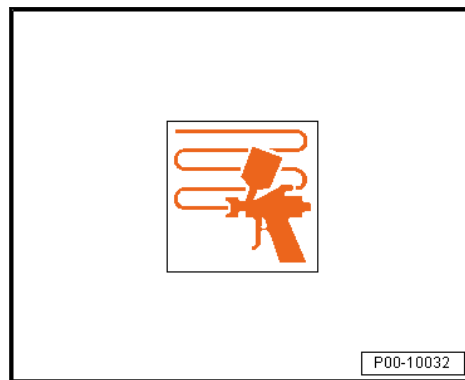


- Adjust nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4	1.5 - 2.0 bar (21.76 - 29.01 psi)	
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)

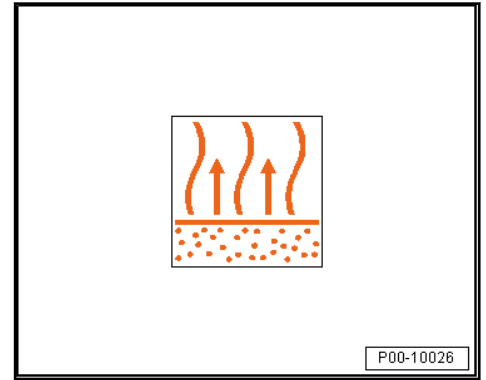


- Perform one to two spray applications.



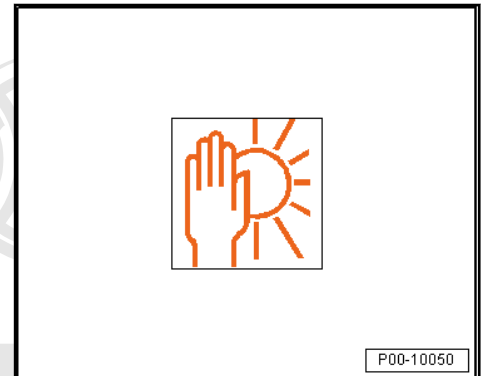
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- Mind the flash-off time: 15 minutes to 8 hours.
- This product mixture is not permitted in the VOC guideline.



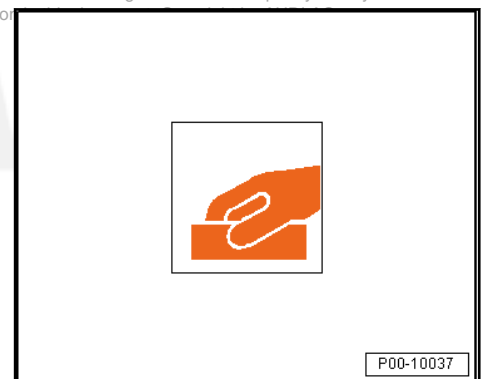
#### Product preparation for the application of STANDARD PLASTIC HS

- Bring the exterior vehicle plastic new parts to the right temperature for 60 minutes at 60 to 65 °C (140 to 149 °F).

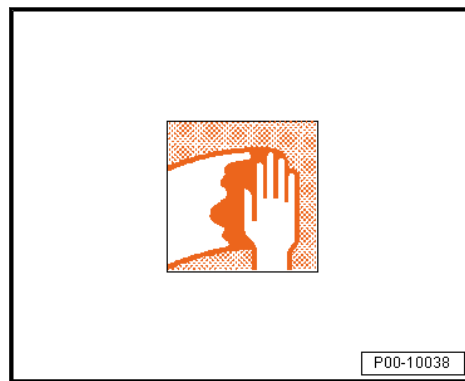


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- For pre-cleaning, use a ultra-fine sanding pad soaked with Silicone Remover, Long LVM 020 100.

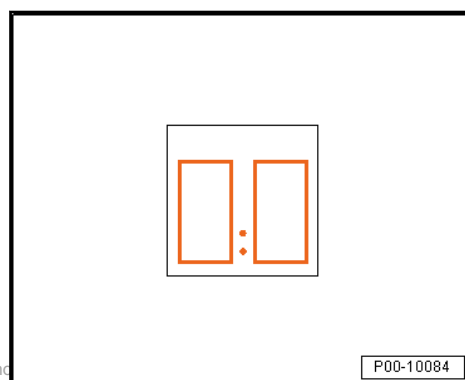


- For post-cleaning, use a towel wet with Silicone Remover, Long LVM 020 100.
- Wipe the surface to loosen and remove impurities. Immediately wipe with a clean towel.
- Change the towels often. Do not use any dirty towels.

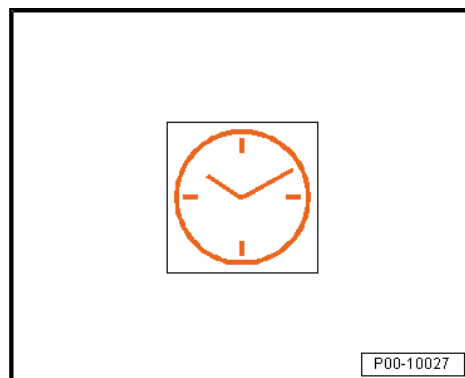


- Pay attention to the mixture ratio:

Filler		Hardener		Thinner	
Vol.	Weight	Vol.	Weight	Vol.	Weight
3	100	1	21	30%	21
Two-Part HS Wet-on-Wet Filler, light gray LVM 013 008 A4		Two-Part HS Hardener, Extra Short LHA 009 046		Plastic Additive LVM 035 120	
Two-Part HS Wet-on-Wet Filler, black LVM 013 905 A4		Two-Part HS Hardener, Short LHA 021 004		Two-Part Thinner, Special LVM 009 200 *	
		Two-Part HS Hardener, Long LHA 009 041		Two-Part Thinner, Long LVM 009 300 *	
		Two-Part HS Hardener, Extra Long LHA 009 048			
* if necessary, add 0 to 10% of LVM 009 200/300					

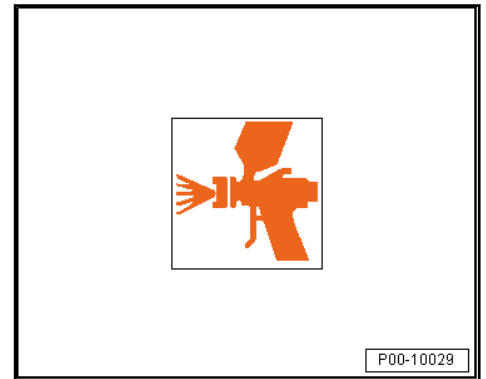


- Pay attention to the working time of 45 minutes to 90 minutes at 20 °C (68 °F)

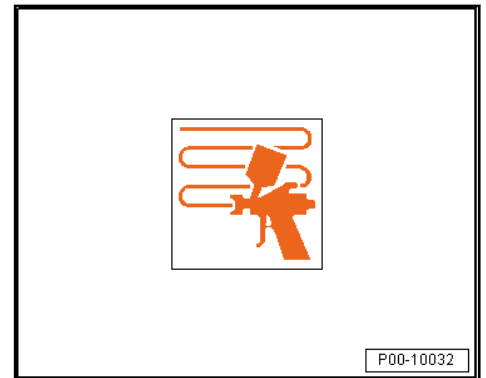


- Adjust nozzle and spray pressure according to the manufacturer information.

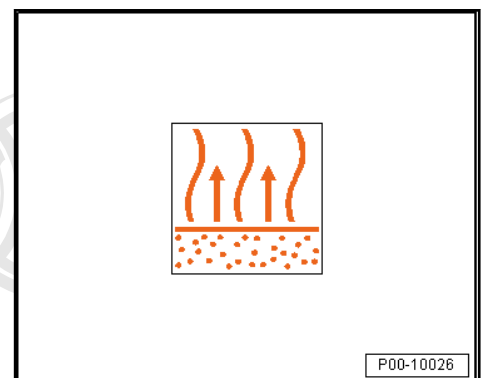
	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4	1.5 - 2.0 bar (21.76 - 29.01 psi)	
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)



- Perform one to two spray applications.



- Mind the flash-off time: 15 minutes to 8 hours.
- This product mixture is not permitted in the VOC guideline.



## Product mixture

### Products:

- ◆ Two-Part HS Wet-on-Wet Filler LVM 013 008/905
- ◆ Two-Part HS Hardener, Extra Short LHA 009 046
- ◆ Two-Part HS Hardener, Short LHA 021 004
- ◆ Two-Part HS Hardener LHA 009 041
- ◆ Two-Part HS Hardener, Long LHA 009 047

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- ◆ Two-Part HS Hardener, Extra Long LHA 009 048
- ◆ Two-Part VHS Hardener, Short LHA 009 050
- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051
- ◆ Two-Part VHS Hardener, Long LHA 009 052
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053
- ◆ Two-Part VHS Performance Hardener LVM 009 038
- ◆ Two-Part VHS Performance Hardener, Long LVM 009 039
- ◆ Two-Part Thinner LVE 009 001
- ◆ Two-Part Thinner, Special LVM 009 200
- ◆ Two-Part Thinner, Long LVM 009 300
- ◆ Plastic Additive LVM 035 120



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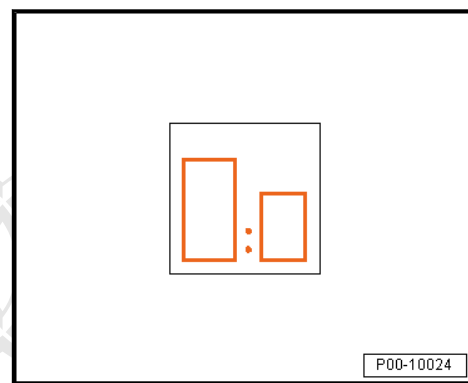
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Refer to ⇒ WizardWeb or the respective data sheets to find the product mix table for mixture ratios with special additives.

The hardener and thinner should be selected depending on the processing temperature and size of the repair area if possible.

Two-Part VHS Hardener, Short LHA 009 050	Fast, short, hardener is suitable for Clever Repair and parts repair. Mainly used at temperatures of 15 to 20 °C (59 to 68 °F).
Two-Part VHS Hardener LHA/LVM 009 051	Medium hardener is suitable for parts and multi-part repairs. Excellent through-hardening at the recommended temperature range of 20 to 25 °C (68 to 77 °F).
Two-Part VHS Performance Hardener LVM 009 038	Medium hardener is suitable for parts and multi-part repairs. Recommended for temperatures from 20 to 25 °C (68 to 77 °F). For high technological requirements.
Two-Part VHS Performance Hardener, Long LVM 009 039	Long hardener suitable for repairs on mid to large size areas. Recommended in hot climate conditions with temperatures ranging from 25 to 40 °C (77 to 104 °F). For high technological requirements.
Two-Part VHS Hardener, Long LHA 009 052	Long hardener suitable for horizontal surfaces and multi-part to complete paint jobs in a temperature range of 20 to 30 °C (68 to 86 °F).
Two-Part VHS Hardener, Extra Long LHA 009 053	Extra long hardener is suitable for horizontal areas as well as multi-part and complete paint jobs. Provides very good spray mist characteristics and processing properties. Mainly used at temperatures of 25 to 40 °C (77 to 104 °F).
Two-Part HS Hardener, Extra Short LHA 009 046	Extra short hardener suitable for Clever Repair and partial repair. Suitable for air drying at low temperatures of 15 to 20 °C (59 to 68 °F).
Two-Part HS Hardener, Short LHA 021 004	Short, hardener is suitable for parts and multi-part repair. Mainly used at temperatures of 15 to 25 °C (59 to 77 °F).
Two-Part HS Hardener LHA 009 041	Medium hardener is suitable for parts and multi-part repair. Excellent through-hardening, mainly applied in a temperature range of 20 to 30 °C (68 to 86 °F).



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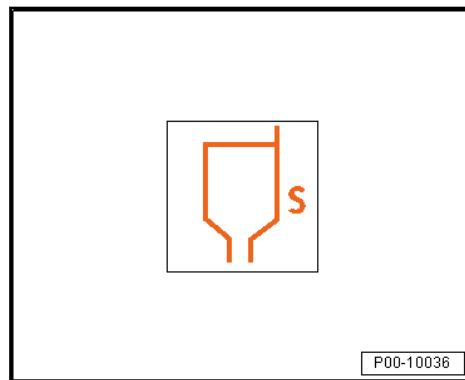


Two-Part HS Hardener, Long LHA 009 047	Long hardener suitable for horizontal areas as well as multi-part repairs to complete paint jobs. Also recommended for warmer temperatures about 25 to 35 °C (77 to 95 °F).
Two-Part HS Hardener, Extra Long LHA 009 048	Extra long hardener is suitable for horizontal areas as well as multi-part to complete paint jobs. Provides very good spray mist characteristics and processing properties. Mainly used in a temperature range of 30 to 40 °C (86 to 104 °F).
Two-Part Thinner LVE 009 001	Medium thinning is suitable for horizontal areas as well as parts to complete paint jobs. Mainly used at temperatures of 20 -to 30 °C.
Thinner, Special LVM 009 200	Medium thinner suitable for part, multi-part, and large-surface repairs. Mainly used at temperatures from +15 to 30 °C (59 to 86 °F).
Thinner, Long LVM 009 300	Long thinning for multi-part to complete paint jobs. Mainly used at high temperatures from +30 to 40 °C (86 to 104 °F).

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Pay attention to the application viscosity:

- ◆ ISO 4: 37 to 68 seconds at 20 °C (68 °F)
- ◆ DIN 4: 16 to 24 seconds at 20 °C (68 °F)



### Theoretical yield

Dry layer thickness DFT, 30 to 50 µm, wet-on-wet process.

Theoretical yield at 1 µm dry layer thickness is 390 to 420 m (1,279.5 to 1,378 feet)<sup>2</sup>/l.

- ◆ The theoretical yield may vary due to different hardener characteristics and different mixture ratios of the ready-to-spray mixture in some data sheets.

- ◆ Practical material consumption depends on various factors, such as the geometry of the object, the surface characteristics, processing method, spray gun adjustment, inlet pressure, etc.

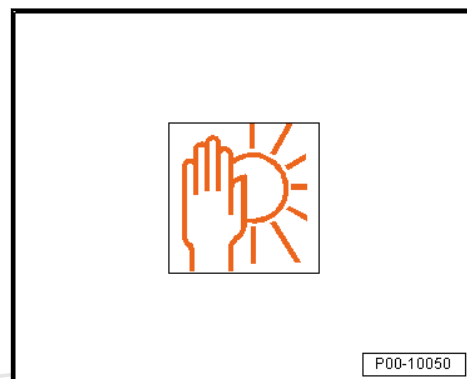
Clean the spray gun after use using a suitable cleaner containing a solvent.

#### 4.4.4 Two-Part HS Speed Filler

##### Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



##### Product Description

The Two-Part HS Speed Filler LVM 016 100/173/190 makes it possible to increase the number of cycles in the workshop.

Two-part HS speed filler optimizes the working process considerably thanks to its simple usage and fast drying. Air drying properties are much shorter compared to standard fillers that are air dried. The result is a faster working process, even without IR drying.

An important advantage is a smooth surface, which provides an excellent painting result.

- ◆ Simple mixture ratio: 1:1 with speed filler hardener LVM 009 054.
- ◆ Fast application process with up to four coats.
- ◆ Excellent stability under load.
- ◆ Time and energy savings thanks to excellent air drying properties. Parts can be sanded after just 20 minutes, depending on the climatic conditions.
- ◆ Other drying methods can also be used, for example forced drying at different temperatures or IR drying.
- ◆ Thanks to air drying, different types of work can also be performed at the same time, from minimal damage repair, to clever repairs, to partial painting.
- ◆ The smooth filler surface creates the basis for an excellent paint finish.
- ◆ Available in the colors white, medium gray, and anthracite.
- ◆ A pre-treatment towel D 043 100 M5 must be used.



## Product preparation

- ◆ Stir thoroughly by hand before placing the container in the mixer.
- ◆ Humidity has an accelerating influence on the drying properties and pot life.
- ◆ Do not use the wash primer under two-part HS speed filler LVM 016 100/173/190.
- ◆ A pre-treatment towel D 043 100 M5 must be used on uncoated metal base surfaces. Failure to use this can be verified with an analysis.
- ◆ Two-part HS speed filler should be at a room temperature of +18 to 25 °C (64.4 to 77 °F) before use.
- ◆ It can also be applied with a short intermediate flash-off time to separate from filling repairs.
- ◆ After 90 minutes of air drying, filler paste/spray filler can be applied.
- ◆ Do not put excess, ready-to-use two-part HS speed filler back in the original container.
- ◆ Early sanding is possible when using premium/flexible sanding disks.
- ◆ Can be sanded after 20 minutes, depending on the humidity, temperature and dry layer thickness.
- ◆ After use, all containers must be securely sealed immediately.
- ◆ If necessary, up to 5% thinner can be added to the mixed two-part HS speed filler for large surfaces.
- ◆ If two-part speed filler has been elasticized, this mixture can also be applied to adjacent metal surfaces. The adjustment remains VOC-compliant.
- ◆ An elastification is required for rigid and semi-rigid plastic types.

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## VOC value

Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (c) (540) 540	The EU limit for this product (product category IIB.c) in ready-to-use form is a maximum of 540 g (19 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 540 g (19 oz)/l.

## STANDARD SANDING processing

### Requirements:

- ◆ Steel panels, galvanized steel panels, or soft aluminum, sanded, cleaned and pre-treated with D 043 100 M5 pre-treatment towel.
- ◆ Old or factory paint structure, well-sanded and cleaned.

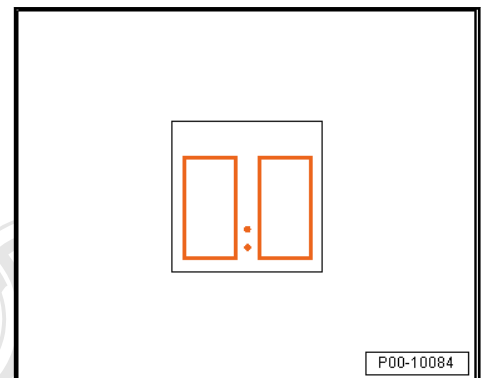
- ◆ Original factory paint structure cataphoretic dip coating (CDC), sanded and cleaned.
- ◆ Surfaces prepared with two-part polyester products and then sanded very fine and cleaned.

- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



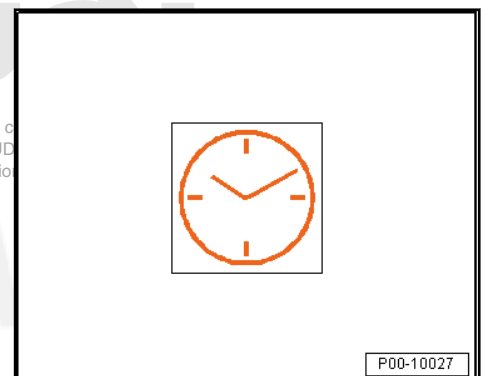
- Pay attention to the mixture ratio:

Filler		Hardener		Catalyst	
Volume	Weight	Volume	Weight	Volume	Weight
1	100	1	55	10 %	10
Two-Part HS Speed Filler LVM 016 100/173/190		Two-Part Speed Filler Hardener LVM 009 054		Two-part HS speed filler catalyst LVM 016 001	



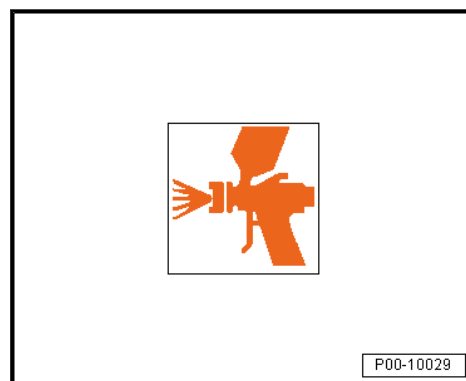
- Pay attention to the working time of 30 minutes to 60 minutes at 20 °C (68 °F)

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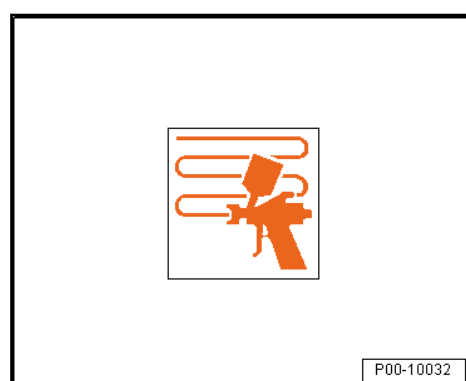


- Adjust nozzle and spray pressure according to the manufacturer information.

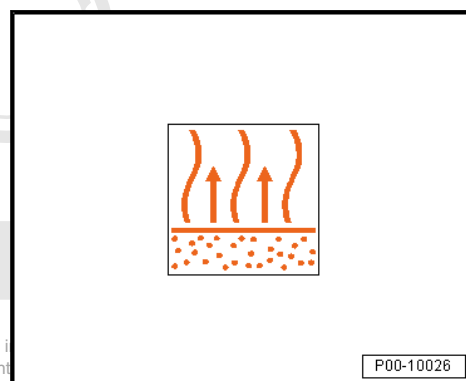
	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.4 to 1.6	1.0 to 1.5 bar (14.5 to 21.76 psi)	
HVLP	1.4 to 1.6		0.7 bar (10.15 psi)



- Perform 2 to 4 spray applications until the surface is matte.



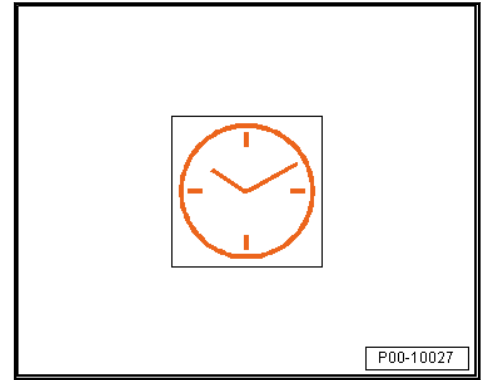
- Adhere to the flash-off time after the first spray application  
 No flash-off is required for the spray applications after that.



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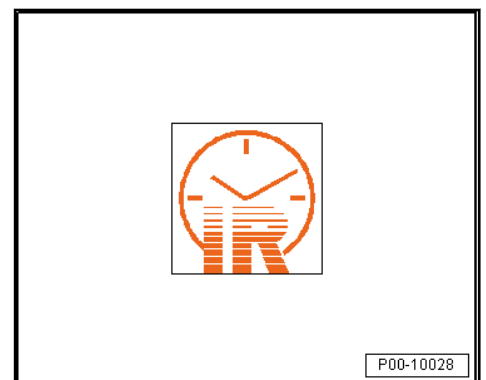
- Pay attention to the drying times:

	<b>Two-Part Speed Filler Hardener LVM 009 054</b>
20 °C (68 °F)	20 minutes to 1 hour
40 to 45 °C (104 to 113 °F)	10 to 15 minutes
60 to 65 °C (140 to 149 °F)	5 to 10 minutes



- Mind the drying time for short wave IR device:

- ◆ Half-output
- ◆ 5 to 10 minutes



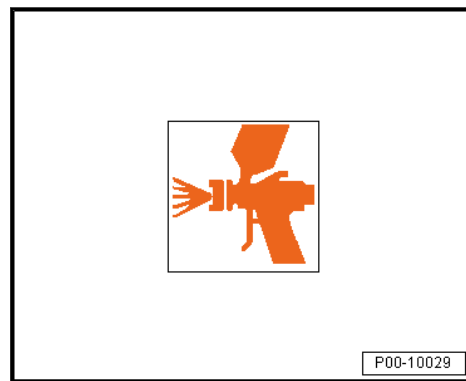
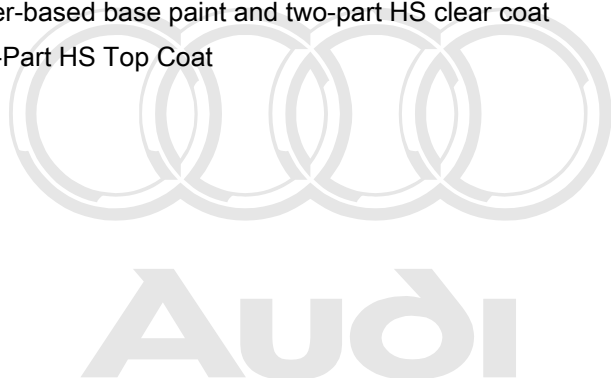
- Perform dry sanding using a rotary sander, with P500 to P600 dry sanding paper and dust extraction.



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- Paint over within 24 hours.
- ◆ Water-based base paint and two-part HS clear coat
- ◆ Two-Part HS Top Coat



P00-10029

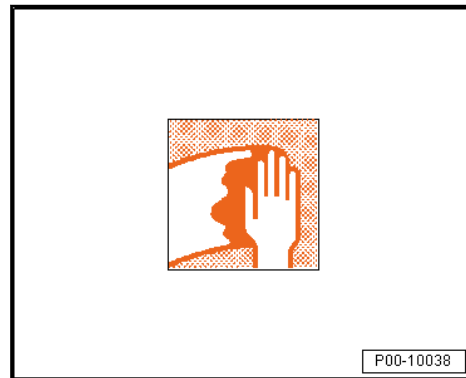
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## STANDARD PLASTIC TYPES processing

### Requirements:

- ◆ Repairs on cleaned and sanded passenger vehicle plastic parts on the exterior of vehicles; original factory primer for plastic, sanded and cleaned.
- ◆ Fiberglass-reinforced polyester base surfaces, free of separating agents, sanded and cleaned.
- ◆ Plastic parts coated with Bonding Agent LVM 823 000 A2.

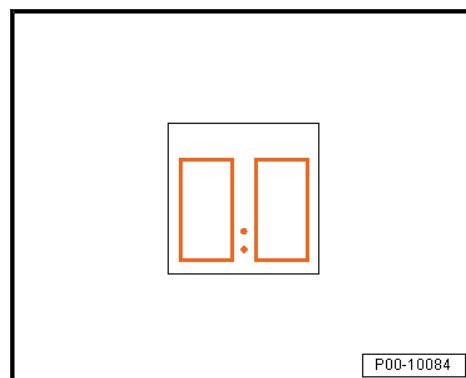
- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



P00-10038

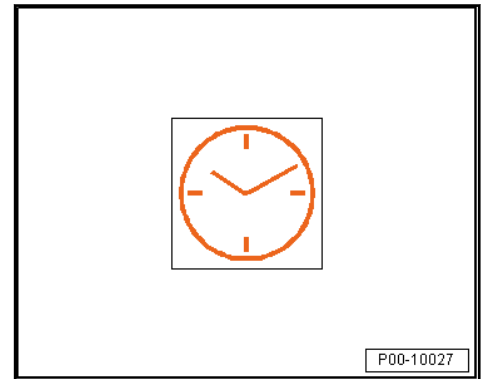
- Pay attention to the mixture ratio:

Filler		Additive		Hardener	
Volume	Weight	Volume	Weight	Volume	Weight
1	100	10%	6	1	60
Two-Part HS Speed Filler LVM 016 100/173/190		Two-part Elastic Additive ALZ 011 001		Two-Part Speed Filler Hardener LVM 009 054	



P00-10084

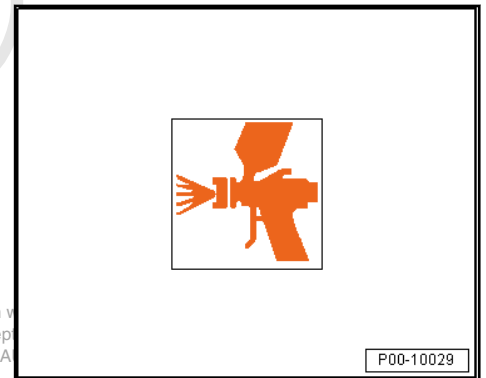
- Pay attention to the working time of 30 minutes to 60 minutes at 20 °C (68 °F)



- Adjust nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.4 to 1.6	1 - 1.5 bar (14.5 - 21.76 psi)	
HVLP	1.4 to 1.6		0.7 bar (10.15 psi)

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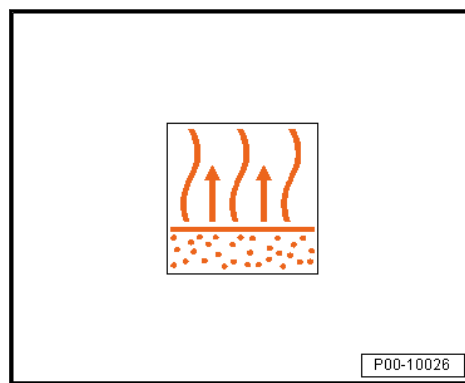


- Perform 2 to 3 spray applications until the surface is matte.



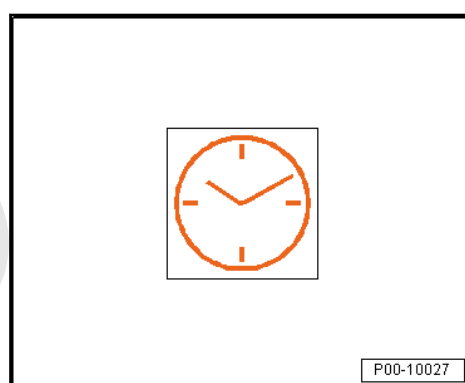
- Adhere to the flash-off time after the first spray application

No flash-off is required for the spray applications after that.

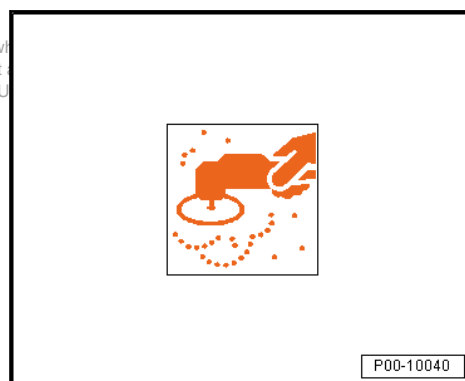


- Pay attention to the drying times:

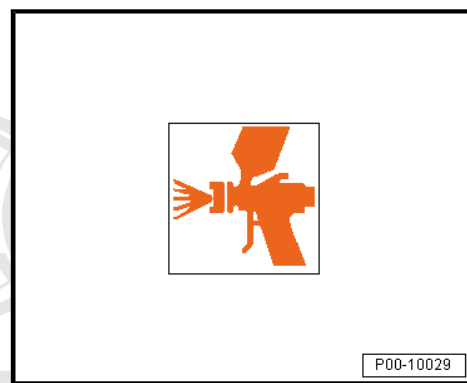
	Two-Part Speed Filler Hardener LVM 009 054
20 °C (68 °F)	20 minutes to 1 hour
40 to 45 °C (104 to 113 °F)	10 to 15 minutes
60 to 65 °C (140 to 149 °F)	5 to 10 minutes



- Perform dry sanding using a rotary sander, with P500 to P600 dry sanding paper and dust extraction.



- Paint over within 24 hours.
- ◆ Water-based base paint and two-part HS clear coat
- ◆ Two-Part HS Top Coat



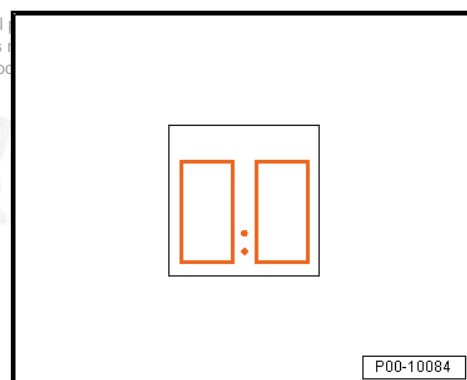
## Product mixture

### Mixing ratio

Refer to ⇒ WizardWeb or the respective data sheets to find the product mix table for mixture ratios with special additives.

The hardener and thinner should be selected depending on the processing temperature and size of the repair area if possible.

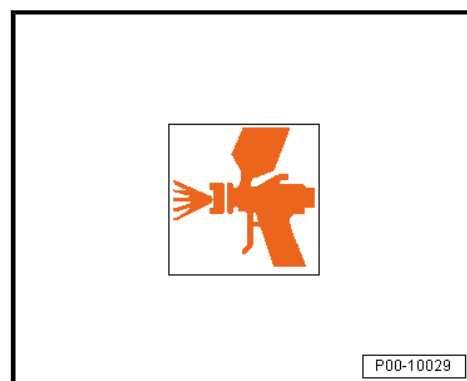
Two-Part Speed Filler Hardener LVM 009 054	Special hardener that can only be used with the two-part HS speed filler LVM 016 ... . It can be used for all types of repairs under all climatic conditions and drying options.
Two-part HS speed filler catalyst LVM 016 001	The catalyst can only be used with two-part HS speed filler LVM 016 ... . It accelerates the air drying at low humidity and oven drying of the filler.
Thinner, Special LVM 009 200	Medium thinner suitable for part, multi-part, and large-surface repairs. Mainly used at temperatures from +15 to 30 °C (59 to 86 °F).
Thinner, Long LVM 009 300	Long thinning for multi-part to complete paint jobs. Mainly used at high temperatures from +30 to 40 °C (86 to 104 °F).



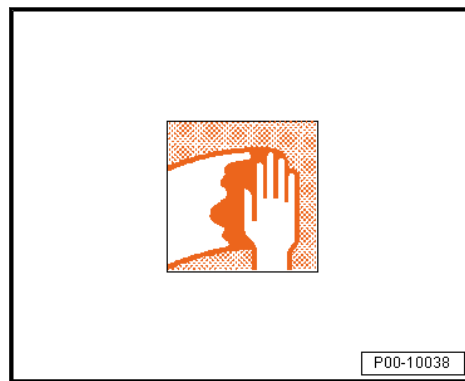
- Apply a dry layer thickness of 80 to 150 µm.

Theoretical yield:

- ◆ 390 m (1,279.5 feet)<sup>2</sup>/l at 1 µm dry layer thickness.
- ◆ The theoretical yield may vary due to different hardener characteristics and different mixture ratios of the ready-to-spray mixture in some data sheets.
- ◆ Practical material consumption depends on various factors, such as the geometry of the object, the surface characteristics, processing method, spray gun adjustment, inlet pressure, etc.



- Clean the spray device after use using a suitable cleaner containing a solvent.



#### 4.4.5 The Right Filler for each Repair

	Two-Part HS Premium Filler	Two-Part HS Performance Filler for the highest-quality repair and warranty/body warranty.	Two-Part HS Wet-on-Wet Filler
	LGF 013 100 A LGF 013 190 A4 LGF 013 007 A4 LVM 013 171 A4	LVM 014 100 A4 LVM 014 173 A4 LVM 014 190 A4	LVM 013 008 A4 LVM 013 905 A4
Wet-in wet			X
Wet-on-Wet for Plastic Parts			X with Plastic Additive LVM 035 120 A2
Sanding filler	X	X	X
Normal layer 80 to 100 µm	X	X	X 30 to 50 µm
Intermediate layering 100 to 150 µm	X	X	
Higher layers maximum 200 µm	X		
HS hardener	4:1		3:1
VHS Hardener	7:1	5:1*	5:1
		* with VHS performance hardener	

##### Condition

- Two-part elastic additive in the filler increases corrosion protection.
- This is why, after removing corrosion, the filler must be mixed with 10% Two-Part Elastic Additive ALZ 011 001.
- Mind that the hardener mixture ratio has changed.

## 4.5 Two-Part Top Coat

⇒ ["4.5.1 Two-Part HS Top Coat", page 133](#)

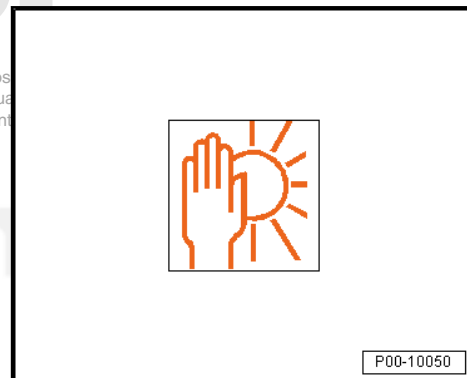
### 4.5.1 Two-Part HS Top Coat

#### Storage

Guaranteed shelf life is:

- ◆ Two-Part HS Solid Top Coats L2K 073 ... 24 months from the production date.
- ◆ Two-Part HS Mixed Paints L2K 074 ... 36/48 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



#### Product Description

The two-part HS top coat series is a high solid top coat system. It is designed for use in automobile repairs.

The color program is extensively coordinated through an assortment of paint mixtures.

#### Properties

- ◆ Easy to process
- ◆ Dries quickly
- ◆ Excellent top coat gloss
- ◆ VOC compliant below 420 g (14.8 oz)/L

#### Suitable base surfaces

- ◆ Hardened, solvent-resistant, well-preserved and sanded old paint or factory paints
- ◆ Surfaces treated with primer or filler

Suitable pre-treatment materials:

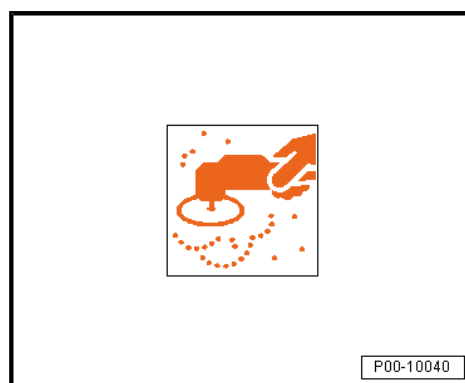
- ◆ Dependent on the object and base surface in accordance with the structure recommendations.

### Base, preparation

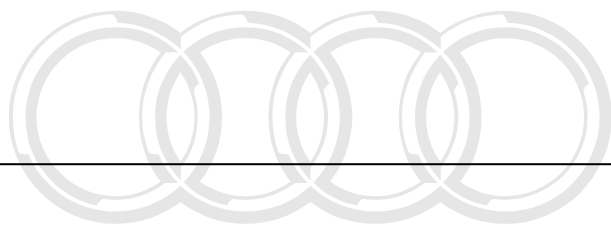
- Carefully clean the base surfaces using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.



- Or wet-sand with P800 to 1000 grit wet sandpaper.



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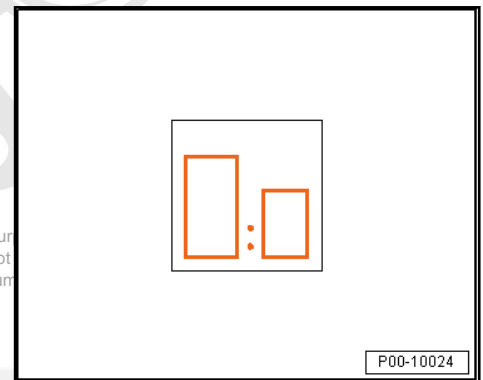
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- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



### Mixing ratio

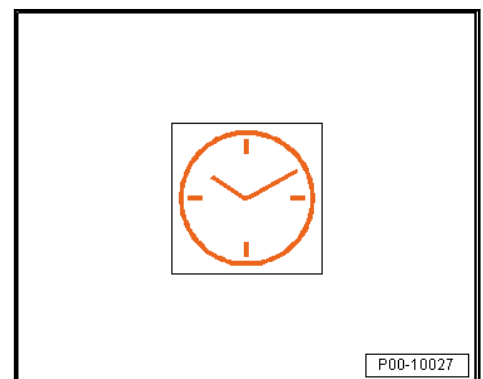
- Perform a mixing ratio 3:1 by volume with the following hardeners:
  - ◆ Two-Part VHS Hardener, Short LHA 009 050 A2, for small surfaces, spot repair
  - ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5, for small to medium-sized surfaces, at moderate temperatures
  - ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3, for larger surfaces at moderate temperatures
  - ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2, for large surfaces and high temperatures
  - ◆ Refer to the reference sheets. Refer to ⇒ [“4.10.3 Two-Part VHS Hardener”, page 251](#) .
- Perform a mixture ratio 4:1 by volume for Two-Part Solid Top Coat, Matte Black, L2K 073 3FZ A2 and Two-Part Solid Top Coat, Matte Gray L2K 073 7DL A2 with Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5:



### Processing

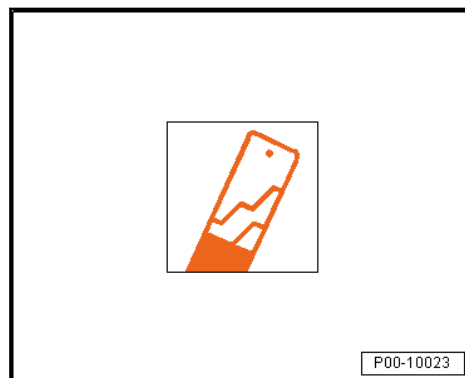
#### Working time/pot life:

- Pay attention to the ready to spray setting 60 to 90 minutes at +20 °C (68 °F).



## Thinner

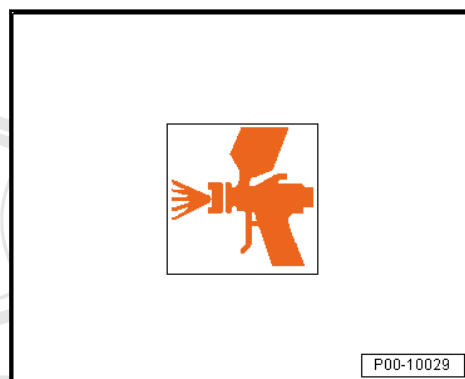
- Thin, using Two-Part Thinner, Special LVM 009 200 A2, HS Spot Thinner LVM 006 000 A2 or Two-Part Thinner, Long LVM 009 300 A2.
- Pay attention to the reference sheet when using HS spot thinner. Refer to Refer to ➤ [“4.11.3 HS Spot Thinner”, page 258](#) .



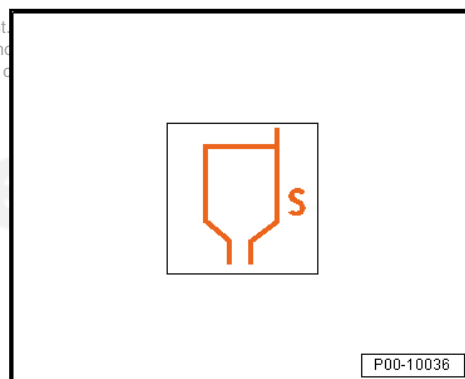
## Processing viscosity

- Perform the application type coat.

Processing viscosity at +20 °C (68 °F) material temperature.

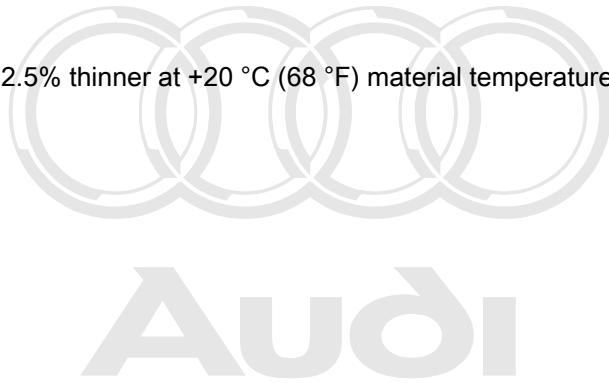


- Pay attention to the processing viscosity “Compliant” and “HVLP”:
- ◆ 18 to 20 seconds
- ◆ 18 to 25 seconds for Two-Part Solid Top Coat, Matte Black L2K 073 3FZ A2 and Two-Part Solid Top Coat, Matte Gray L2K 073 7DL A2

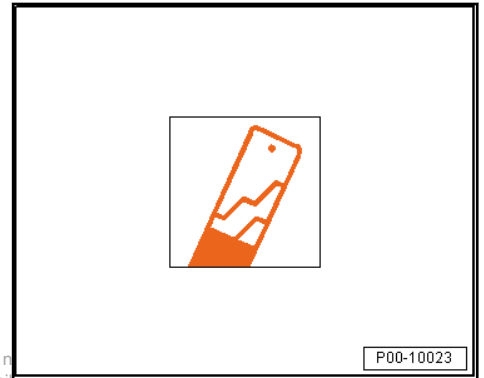


### Thinner

- Adding 12.5% thinner at +20 °C (68 °F) material temperature



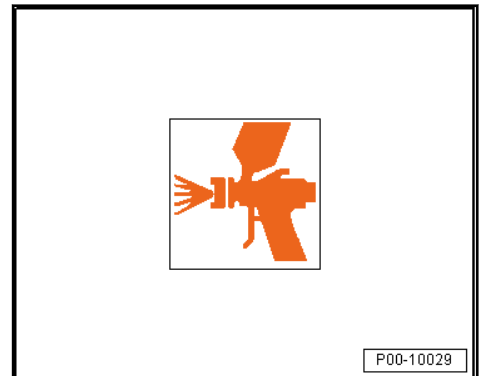
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### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 to 1.4	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)



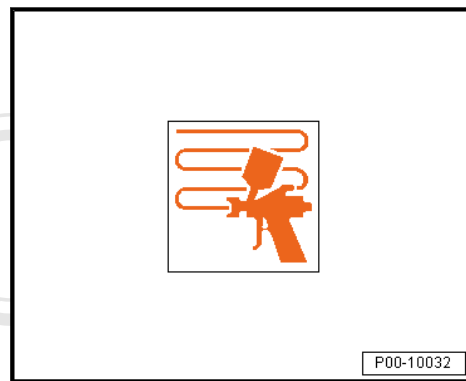
### Processing

1.5 spray applications:

The first half-application creates a thin cohesive film.

Directly after, apply one full spray application on the entire surface.

- Apply the recommended dry layer thickness of 50 to 60 with 1.5 spray applications.
- For less opaque colors, it may be necessary to apply another spray application after the corresponding flash-off time.
- Do not apply on slanted surfaces.
- ◆ When using for minimal damage repairs, Clever Repair procedures, the 12.5% Two-Part Thinner, Special LVM 009 200 A2 can be replaced with 12.5% HS Spot Thinner LVM 006 000 A2.
- ◆ Painting over the two-part HS top coat with the same is possible to do without intermediate sanding when done within 24 hours.
- ◆ The mixing paint in this mixing paint series can only be used within the color tone formulas.
- ◆ When processing individual mixing paints on their own, major deviations from the information given in the reference sheets are possible.

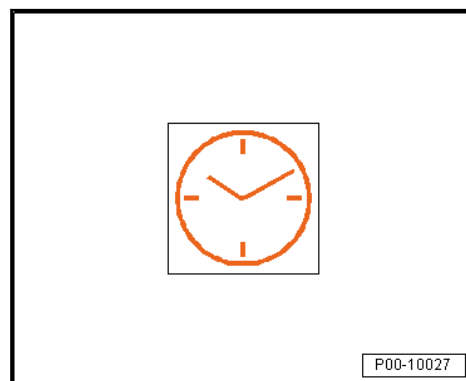


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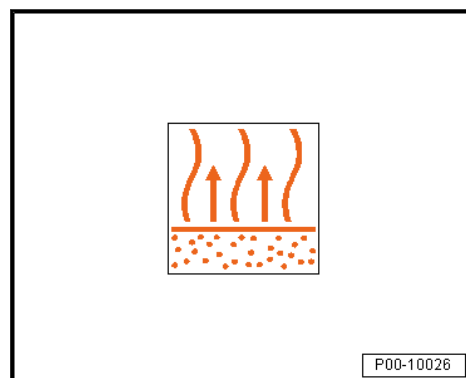
## Drying

Air dry at +20 °C (68 °F) room temperature:

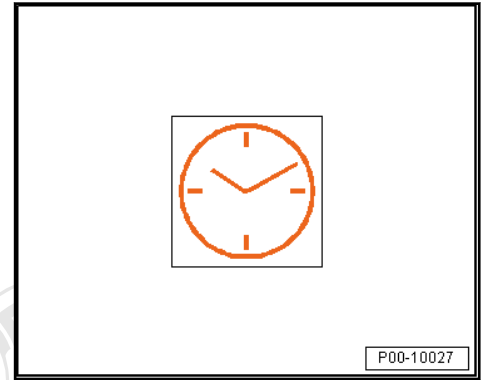
- ◆ Dust dry after 20 to 30 minutes
- ◆ Ready for assembly after 5 to 6 hours
- ◆ Dry overnight



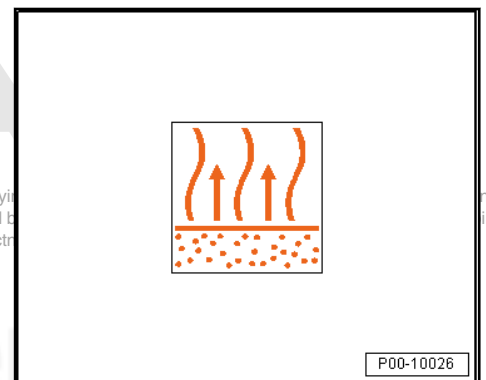
Final flash-off time with forced drying is a minimum of 5 to 10 minutes.



Forced dry at +60 °C (140 °F) object temperature for 15 to 20 minutes



Final flash-off time for IR drying is a minimum of 5 minutes.



IR drying of bright colors with short wave radiator:

- ◆ 5 minutes at 50% output
- ◆ Then, 10 minutes, at 100% output

IR drying of bright colors with medium wave radiator:

- ◆ 15 minutes

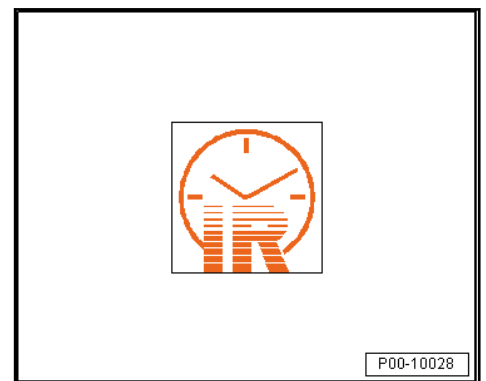
IR drying of dark colors with medium wave radiator

- ◆ 12 minutes

IR drying of dark colors with short wave radiator

- ◆ 12 minutes, at 50% output

When using a short-wave radiator at 100% power, bubbles or solvent popping marks could form when reworking dark colors.

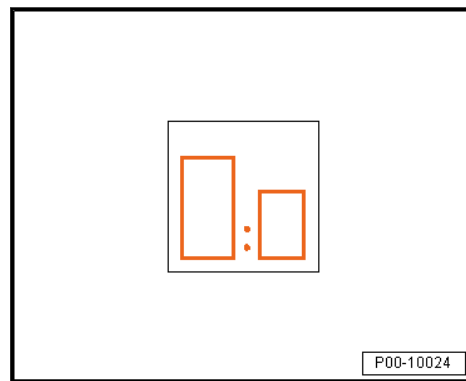


## Processing

Elastification:

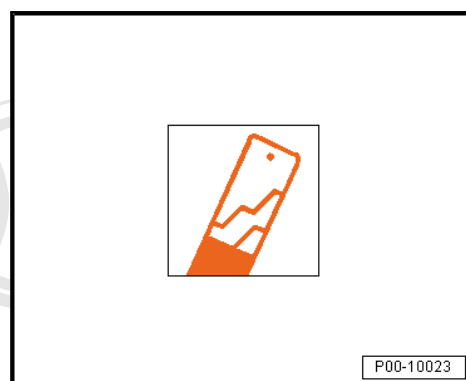


- The base material must first be mixed with 15% Two-Part Elastic Additive ALZ 011 001.
- Mix with two-part VHS hardeners, 3:1 by volume with 15% thinner.

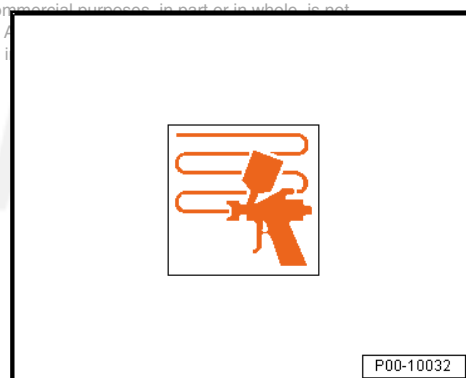


#### Structuring

- The base material must first be mixed with 100% Two-Part Structuring Component, Fine ALN 775 108.
- Mix with two-part VHS hardeners, 4:1 by volume with 15% thinner.

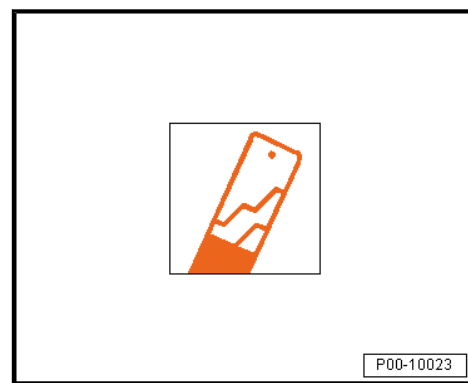


- Apply two spray applications with 5 to 10 minutes intermediate flash-off time for an even paint film surface.



Matting:

- The base material must first be mixed with 100% Matting Component ALN 775 106.
- Apply two spray applications with 5 to 10 minutes intermediate flash-off time for an even paint film surface.
- ◆ The Two-Part Solid Top Coat, Black Matte L2K 073 3FZ A2 and Two-Part Solid Top Coat, Gray Matte L 2K 073 7DL A2 do not require additional Matting Component ALN 775 106, since they are already matted.
- ◆ The mixture ratio for Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5 is 4:1 by volume with 15% thinner.



## 4.6 AquaPlus Solid Top Coats

⇒ [“4.6.1 AquaPlus System, Solid and Metallic”, page 141](#)

⇒ [“4.6.2 AquaPlus System, Pearl Effect and Heliochrome”, page 151](#)

⇒ [“4.6.3 AquaPlus Touch-Up System”, page 162](#)

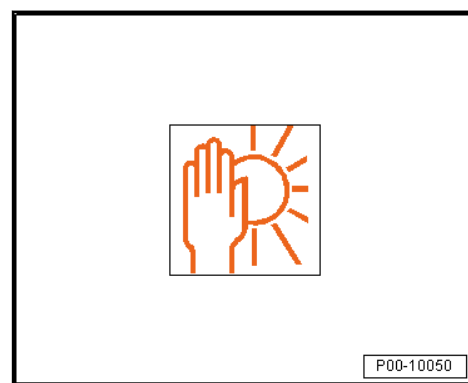
### 4.6.1 AquaPlus System, Solid and Metallic

#### Storage

Guaranteed shelf life is:

- ◆ Water-Based Solid Mixed Paint LWM 075 ... 24 months from the production date.
- ◆ Water-Based Solid Base Paint LUW/LWG 038 ... 24 months from the production date.
- ◆ Water-Based Metallic Mixed Paint LWM 076 ... 24 months from the production date.
- ◆ Water-Based Metallic Base Paint LMW/LWG 039 ... 18/24 months from the production date.

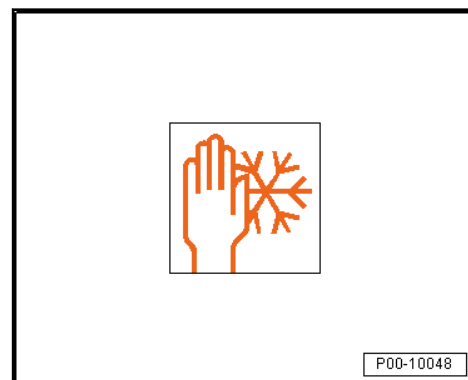
Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



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#### Storage Conditions

- ◆ The optimal storage temperature is +20 °C (68 °F).
- ◆ The temperature must not fall below +5 °C (41 °F)
- ◆ The preferred temperature is between +15 °C and +25 °C (59 °F and 77 °F).
- ◆ For short-term storage, approximately 4 weeks, between +5 °C and +35 °C (41 °F and 95 °F) is acceptable.





## VOC value

Delivery Viscosity	Depends on the color.
Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.

---

## Product Description

- ◆ Water-Based Solid Mixed Paint LWM 075 ...
- ◆ Water-Based Metallic Mixed Paint LWM 076 ...
- ◆ Water-Based Solid Base Paint LUW/LWG 038 ...
- ◆ Water-Based Metallic Base Paint LMW/LWG 039 ...

The Aquaplast system, solid and metallic, is a high-quality water-soluble base paint system. It is based upon special PU dispersion technology for high-quality solid and metallic two-coat vehicle paintwork.

---

## Properties

- ◆ Easy to process
- ◆ Good stability under load
- ◆ High covering capacity
- ◆ Can be painted over with two-part HS clear coat

After painting over with two-part HS clear coat it produces a high-gloss, weatherproof top coat.

---

## Suitable base surfaces

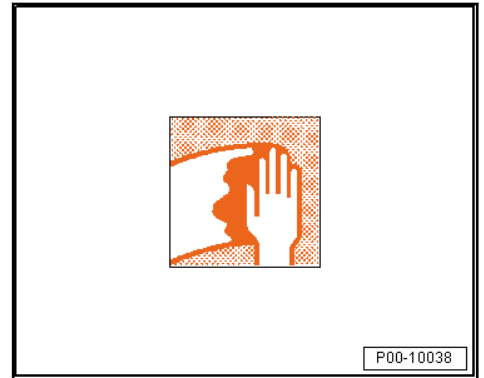
- ◆ Intact old paint
- ◆ Primed and filled surfaces, two-part HS filler
- ◆ with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2 insulated base surfaces
- ◆ With Two-Part Plastic Adhesive Filler LKF 696 009 A2/Two-Part Plastic Adhesive Filler LKF 696 040 A2 insulated base surfaces on plastic surfaces

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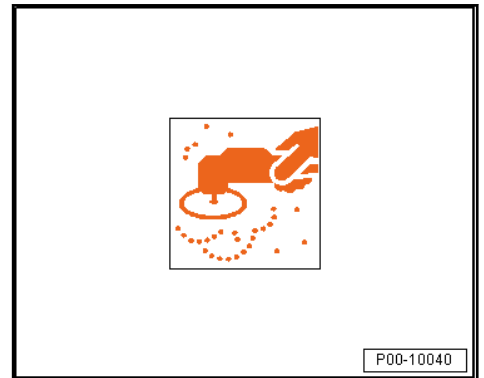
### Base, preparation

- Clean the factory or old paint or two-part HS filler thoroughly with Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



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- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.



- Or wet-sand with P800 to 1000 grit wet sandpaper.

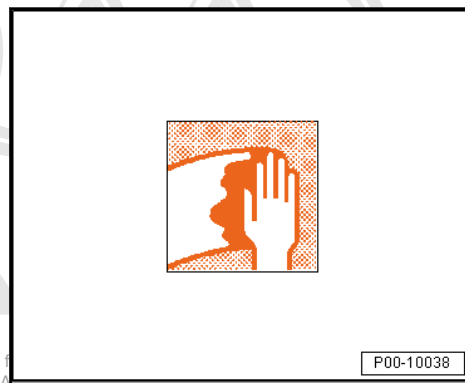




- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks.

#### Special Instructions:

- ◆ Sanded-through areas must be insulated with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2. The sanded-through areas should not be larger than 5.0 cm in diameter.
- ◆ When using the two-part HS filler, any bare areas must be insulated with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2.



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## Processing

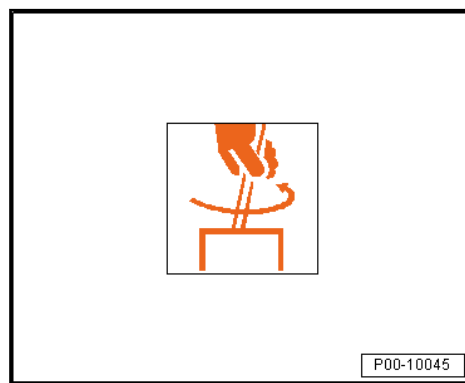
### Condition

- For safety reasons, do not store mixtures that contain both Microsilver, Extra LWM 076 817 A2/A4 and Oxide Glaze LWM 075 831 A1. There is a risk that pressure can build up in sealed containers.
- Accumulated residue should be immediately disposed of properly.

- Use plastic containers or tin-coated cans painted on the inside.
- Filter diluted base paint through water-tight, 125 µm strainers before working with cup systems.
- Use thinner VE Aquaplast Purified Water LVW 010 000 A5 according to ISO 3696.

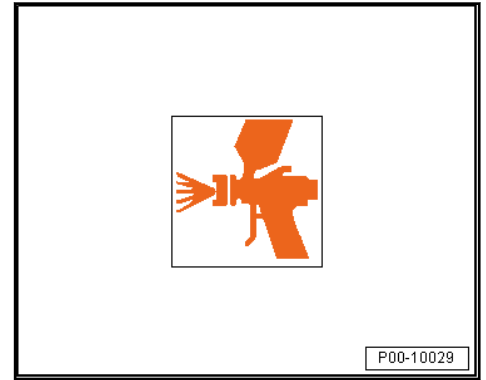
An addition of 0 to 5% Purified Water LVW 010 000 A5 is sufficient at temperatures greater than +25 °C (77 °F) and a high relative humidity greater than 60%.

- Use an Aquaplast measuring stick.



- Pay attention to the reference sheet when using HS spot thinner. Refer to ["4.11.3 HS Spot Thinner", page 258](#).

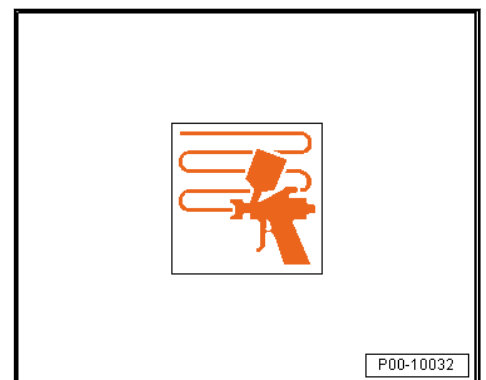
- Perform the application type coat.



- An application includes: applying a thin spray application and then a normal spray application.

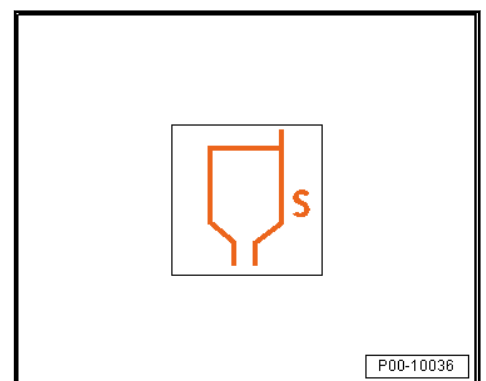
For color shades with special effects, we recommend a “finishing application”.

For less opaque colors, it may be necessary to apply additional spray applications after the corresponding flash-off time.



### Processing viscosity

Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for “Compliant” and “HVLP.”



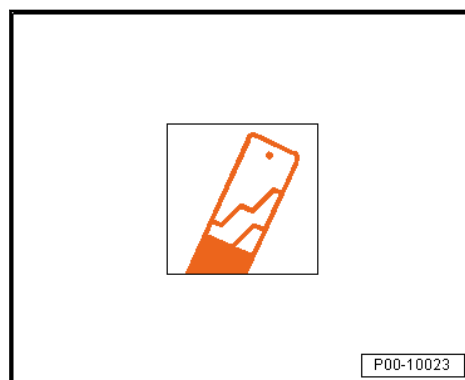
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## Thinner

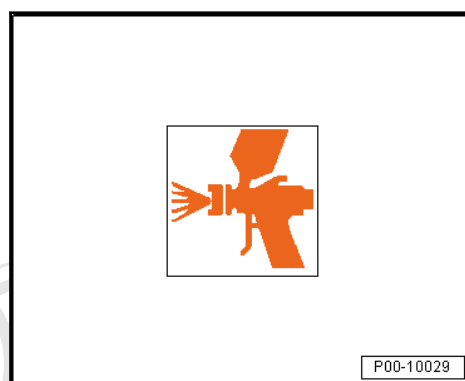
Add 10% thinner at +20 °C (68 °F) material temperature.



## Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.3 mm	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	WSB/1.3 mm		0.7 bar (10.15 psi)



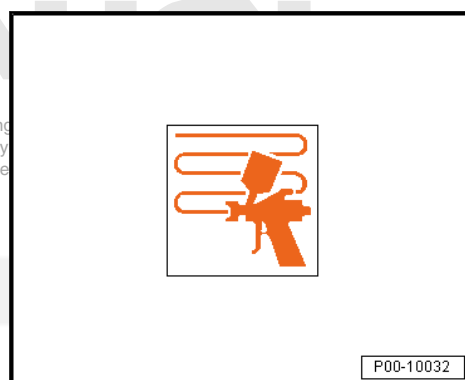
## Spray application

- An application includes: applying a thin spray application and then a normal spray application.

For color shades with special effects, we recommend a “finishing application”.

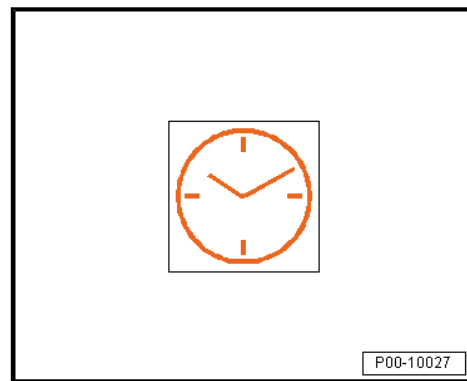
For less opaque colors, it may be necessary to apply additional spray applications after the corresponding flash-off time.

The total coat thickness, including the solid-color water-based base paint, must not exceed 45 µm.



## Flash-off time

The flash-off time for clear coat application is 20 minutes at +20 °C (68 °F) room temperature.

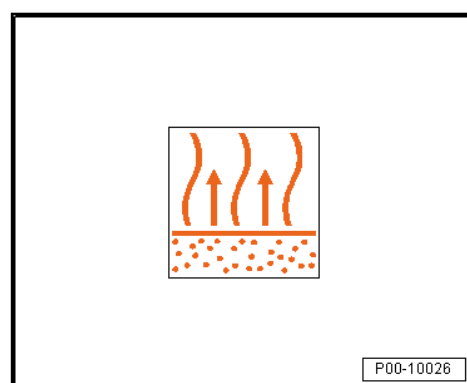


For smaller surfaces, the following make it possible to reduce the flash-off time:

- ◆ A matte finishing of painted surfaces can be achieved more quickly by blowing them with blower nozzles (hand blowers or with stationary devices).
- ◆ Blowing with a spray gun is also possible after waiting at least five minutes.

For larger surfaces, the following make it possible to reduce the flash-off time:

- ◆ A matte finishing of painted surfaces can be achieved more quickly by blowing them with blower nozzles (hand blowers or with stationary devices).
- ◆ Blowing with a spray gun is also possible after waiting at least five minutes.
- ◆ Ceiling system 10 to 15 minutes
- ◆ IR drying 3 to 5 minutes
- ◆ Cooling time minimum of five minutes



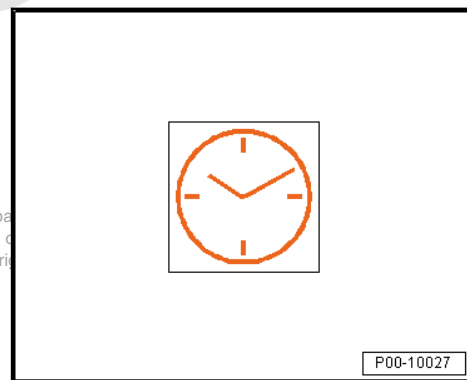
## Drying

Oven drying at +60 °C:

Combination booth	at least 10 minutes including heating time
Paint drying oven	minimum of five minutes
Cooling time	minimum of five minutes

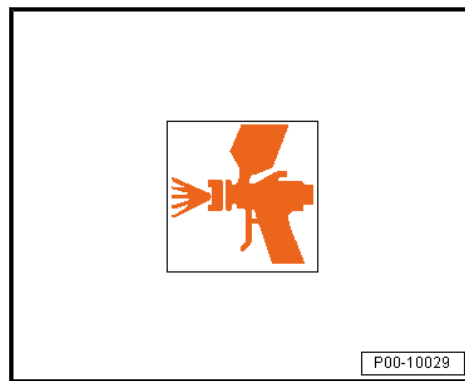
### Condition

- The evaporating and drying times specified here depend on the temperature, humidity, air sink speed in the spray booth and the number of spray applications.
- Always wait until the painted surface is completely matte.



Can be painted over with:

- ◆ Two-Part HS Clear Coat



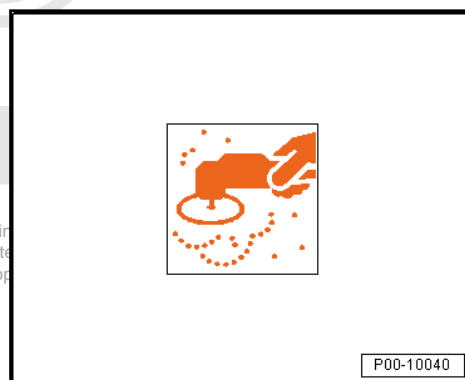
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### Reworking

Special instructions: Touch-up system (for attaining an optically perfect color shade transition to the adjacent parts)

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- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.

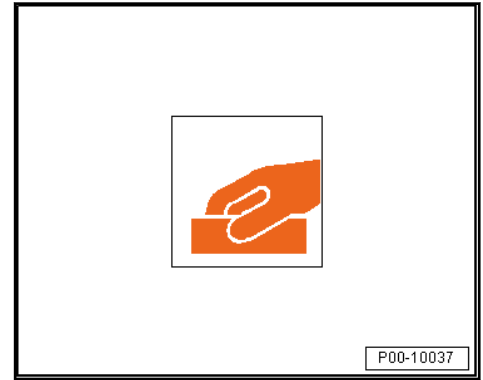


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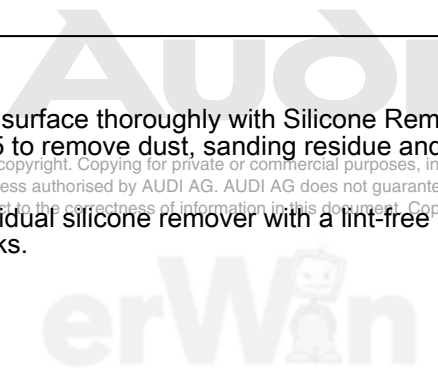
- Or wet-sand with P800 to 1000 grit wet sandpaper.



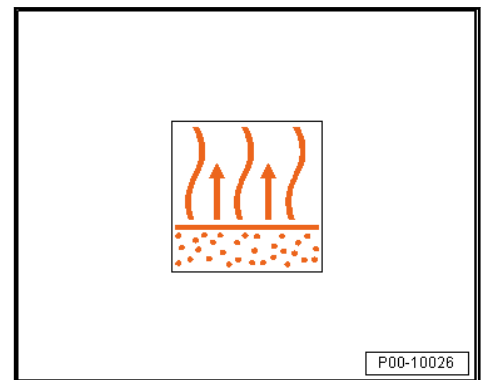
- Thoroughly sand the adjacent surfaces with a fine sanding pad.



- Clean the entire surface thoroughly with Silicone Remover LVM 020 000 A5 to remove dust, sanding residue and other dirt.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks.

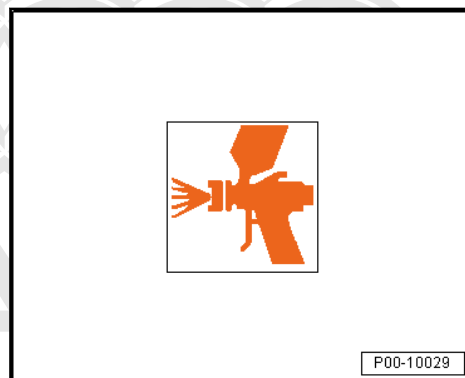


- Allow wet-sanded surfaces and cleaned surfaces to dry completely.



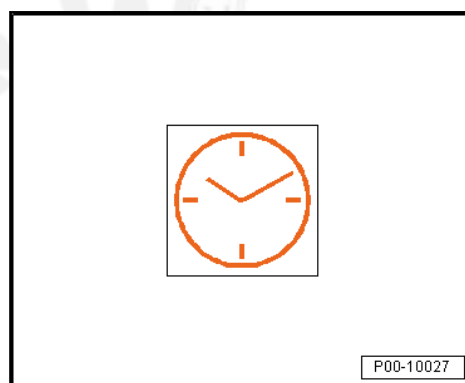
### Touch-up system for metallic and solid color shades

- Thoroughly cover the filled areas with water-based paint, which has been prepared for spraying.
- Expand the scope of each subsequent spray application. This overlapping results in only one misted zone.
- Expand the run-off area and touch-up with reduced pressure.



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- After an appropriate final flash-off time, paint over with two-part HS clear coat.



### Products, Processing

- ◆ The spray devices should be suitable for use with water-soluble products. See reference sheets.
- ◆ The mixing paint in this top coat series can only be used within the color tone formulas. When processing individual mixing paints on their own, major deviations from the information given in the reference sheets are possible.

### Work Equipment, Cleaning

- Rinse before and after using with Aquaplast Purified Water LVW 010 000 A5.
- Rinse with Nitro Thinner LVE 856 000 A3.

Refer to the system reference sheet ⇒ Work Equipment and Spray Guns, Cleaning , for specific information.



## Disposal

- ◆ Collect liquid waste from water-soluble products and separate from liquid waste from conventional products.
- ◆ When mixing materials, disposal may no longer be possible. In any case this will make disposal more difficult and thus costly.
- ◆ For specific information, refer to ⇒ System Reference Sheet No. 9.15 .

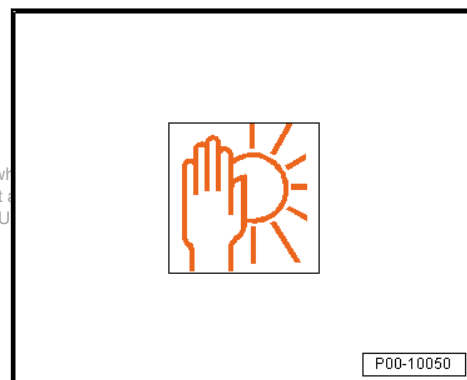
## 4.6.2 AquaPlus System, Pearl Effect and Heliochrome

### Storage

Guaranteed shelf life is:

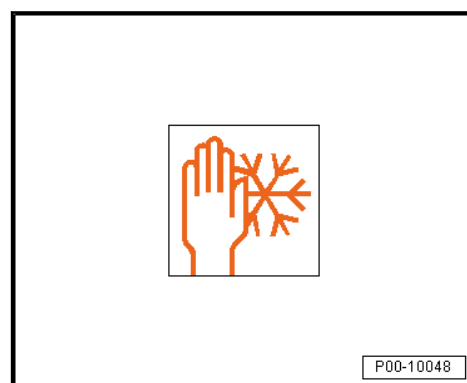
- ◆ Water-Based Pearl Effect Mixed Paint LWM 076 ... 24 months from the production date.
- ◆ Water-Based Pearl Effect Base Paint LPW 040 ... 18/24 months from the production date.
- ◆ Water-Based Heliochrome Base Paint LHW 046 ... 18 months from the production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### Storage Conditions

- ◆ The optimal storage temperature is +20 °C (68 °F).
- ◆ The temperature must not fall below +5 °C (41 °F)
- ◆ The preferred temperature is between +15 °C and +25 °C (59 °F and 77 °F).
- ◆ For short-term storage, approximately 4 weeks, between +5 °C and +35 °C (41 °F and 95 °F) is acceptable.



### VOC value

Flashpoint:	above +23 °C (73.4 °F)
-------------	------------------------



VOC value: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.
---	---

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### Product Description

- ◆ Water-Based Pearl Effect Base Paint LPW 040 ...
- ◆ Water-Based Heliochrome Base Paint LHW 046 ...
- ◆ Water-Based Pearl Effect Mixed Paint LWM 076 ...

The AquaPlus System, pearl effect and heliochrome, is a high-quality water-soluble base paint system based on special PU dispersions

The base paint for pearl effect/heliochrome two-coat paintwork or pearlescent three-coat paintwork can be used on passenger and commercial vehicles.

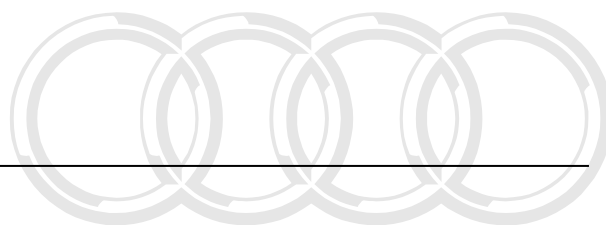
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### Properties

- ◆ Easy to process
  - ◆ Good stability under load
  - ◆ High covering capacity
  - ◆ Can be painted over with two-part HS clear coat
- 

### Suitable base surfaces

- ◆ Intact old paint
  - ◆ Primed and filled surfaces, two-part HS filler
  - ◆ with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2 insulated base surfaces
  - ◆ With Two-Part Plastic Adhesive Filler LKF 696 009 A2/Two-Part Plastic Adhesive Filler LKF 696 040 A2 insulated base surfaces on plastic surfaces
- 



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**Base, preparation**

- Clean the factory or old paint or two-part HS filler thoroughly with Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



P00-10038

- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.



P00-10040

- Or wet-sand with P800 to 1000 grit wet sandpaper.

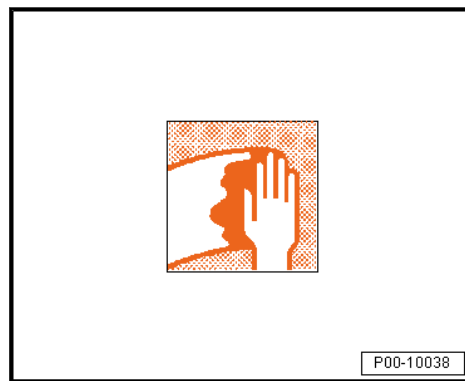


P00-10041

- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks.

#### Special Instructions:

- ◆ Sanded-through areas must be insulated with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2. The sanded-through areas should not be larger than 5.0 cm in diameter.
- ◆ When using the two-part HS filler, any bare areas must be insulated with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2.



## Processing

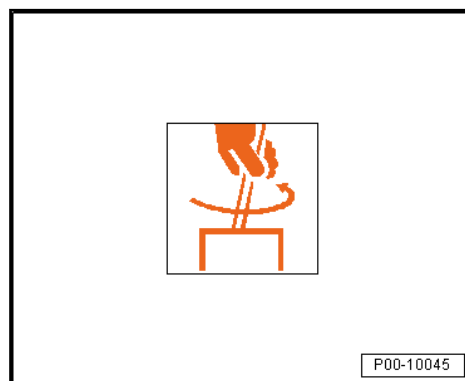
### Condition

- For safety reasons, do not store mixtures that contain both Microsilver, Extra LWM 076 817 A2/A4 and Oxide Glaze LWM 075 831 A1. There is a risk that pressure can build up in sealed containers.
- Accumulated residue should be immediately disposed of properly.

- Use plastic containers or tin-coated cans painted on the inside.
- Filter diluted base paint through water-tight, 125 µm strainers before working with cup systems.
- Use thinner VE Aquaplus Purified Water LVW 010 000 A5 according to ISO 3696.

An addition of 0 to 5% Purified Water LVW 010 000 A5 is sufficient at temperatures greater than +25 °C (77 °F) and a high relative humidity greater than 60%.

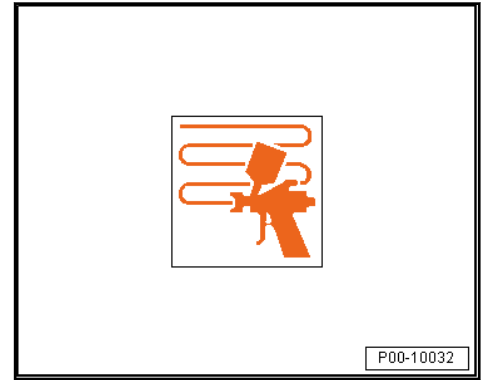
- **Use an Aquaplus measuring stick.**



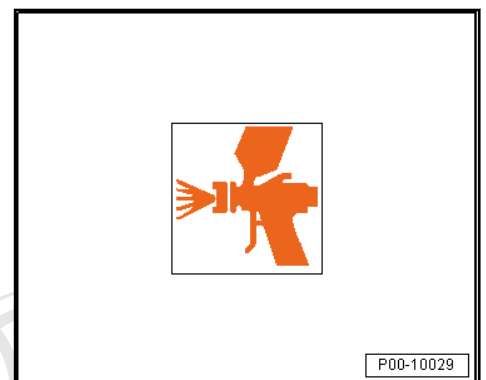
### Pre-painting:

- ◆ With three-coat pearlescent color shades, a special base surface color, applying solid water-based base paint, is required. Each color shade should be determined using the formula information system.

- For pearlescent paints, apply pearl effect water-based base paint.



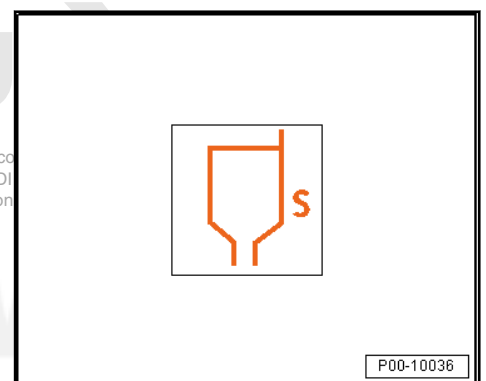
- Perform the application type coat.



### Processing viscosity

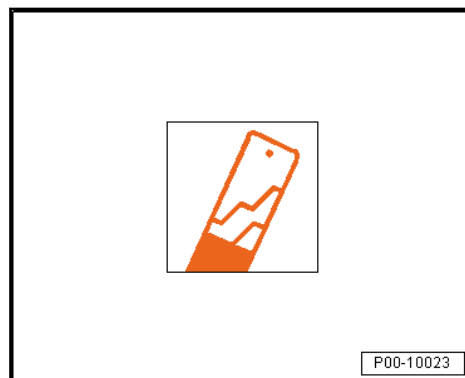
Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for "Compliant" and "HVLP."

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## Thinner

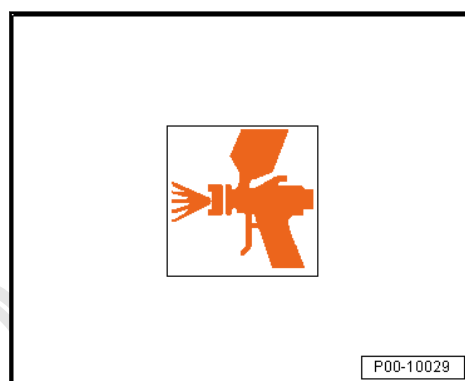
Add 10% thinner at +20 °C (68 °F) material temperature.



## Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

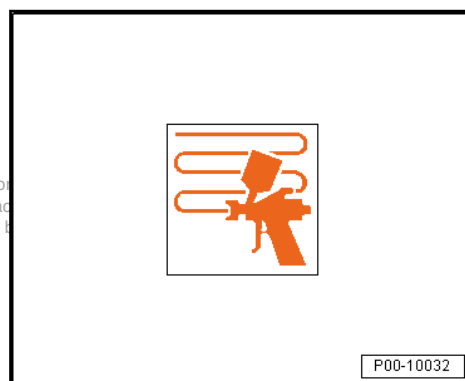
	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.3 mm	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	WSB/1.3 mm		0.7 bar (10.15 psi)



## Spray application

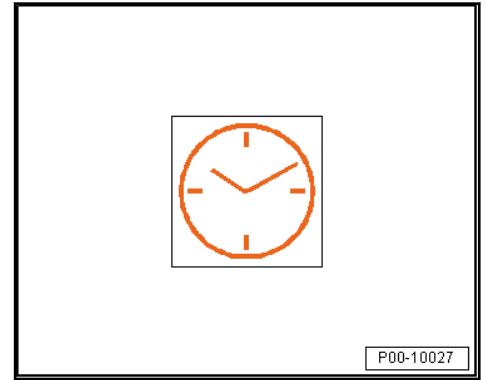
An application includes: applying a thin spray application and then a normal spray application. For color shades with special effects, we recommend a “finishing application”.

- ◆ For less opaque colors, it may be necessary to apply additional spray applications after the corresponding flash-off time.
- ◆ The total coat thickness, including the solid-color water-based base paint, must not exceed 45 µm.



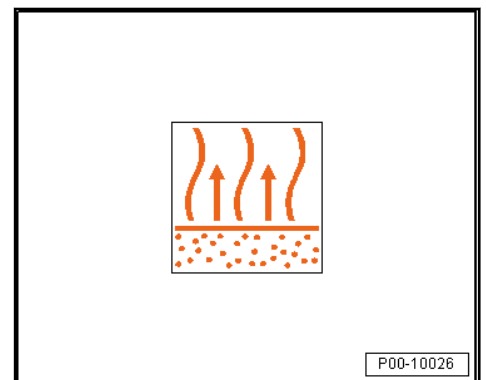
## Flash-off time

The flash-off time for clear coat application is 20 minutes at +20 °C (68 °F) room temperature.



For smaller surfaces, the following make it possible to reduce the flash-off time:

- ◆ A matte finishing of painted surfaces can be achieved more quickly by blowing them with blower nozzles (hand blowers or with stationary devices).
- ◆ Blowing with a spray gun is also possible after waiting at least five minutes.
- ◆ Ceiling system 10 to 15 minutes
- ◆ IR drying 3 to 5 minutes
- ◆ Cooling time minimum of five minutes



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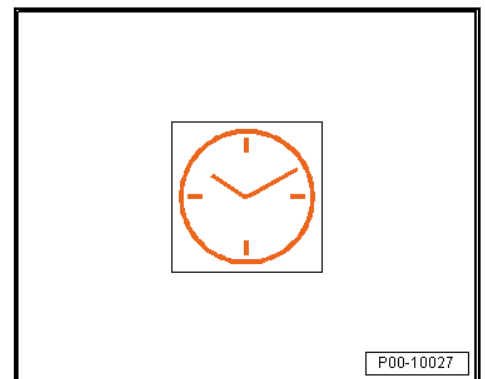
## Drying

Oven drying at +60 °C:

Combination booth	at least 10 minutes including heating time
Paint drying oven	minimum of five minutes
Cooling time	minimum of five minutes

### Condition

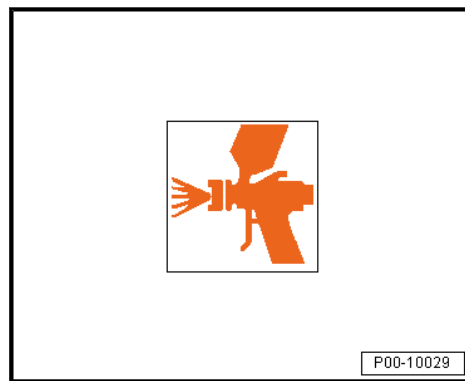
- The evaporating and drying times specified here depend on the temperature, humidity, air sink speed in the spray booth and the number of spray applications.
- Always wait until the painted surface is completely matte.





Can be painted over with:

- ◆ Two-Part HS Clear Coat



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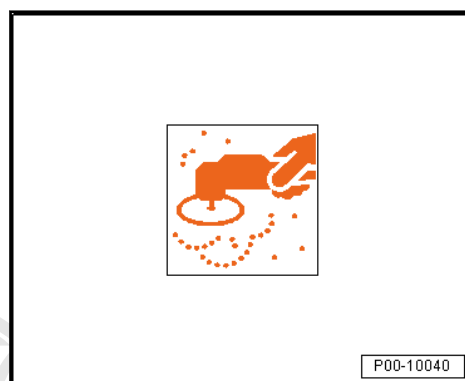
### Reworking, Standard

- ◆ The decision to use two or three coats with a special base surface color shade depends on the factory paint.
- ◆ The respective base color is noted in the formula information system.

Instructions: Touch-up system (for attaining an optically perfect color shade transition to the adjacent parts)

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- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.

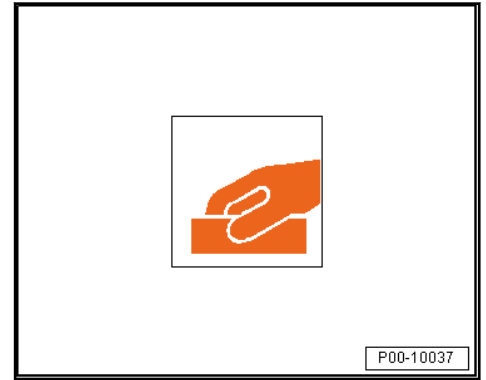


- Or wet-sand with P800 to 1000 grit wet sandpaper.



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- Thoroughly sand the adjacent surfaces with a fine sanding pad.

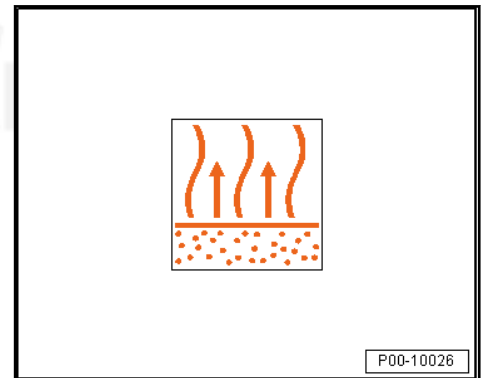


- Clean the entire surface thoroughly with Silicone Remover LVM 020 000 A5 to remove dust, sanding residue and other dirt.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks.



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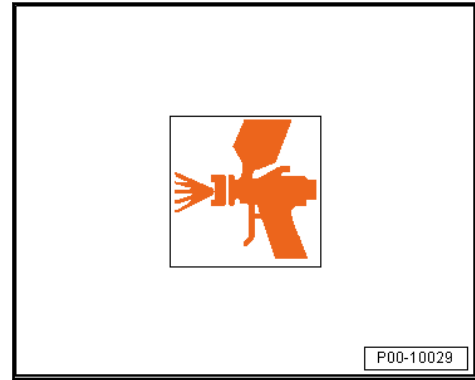
- Allow wet-sanded surfaces and cleaned surfaces to dry completely.



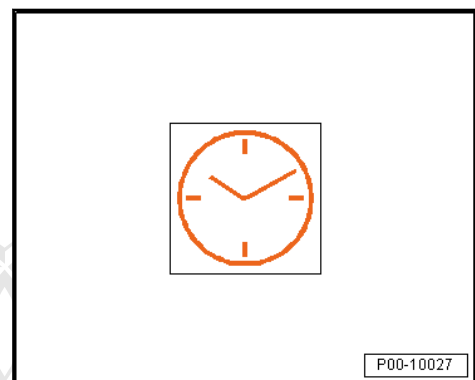
#### Reworking - Two-coat pearl effect/heliochrome color shades

Instructions: Touch-up system (for attaining an optically perfect color shade transition to the adjacent parts)

- Thoroughly cover the filled areas with pearlescent/helio-chrome water-based paint which has been prepared for spraying.
- Expand the scope of each subsequent spray application. This overlapping results in only one misted zone.
- Expand the run-off area and touch-up with reduced pressure.



- After an appropriate final flash-off time, paint over with two-part HS clear coat.

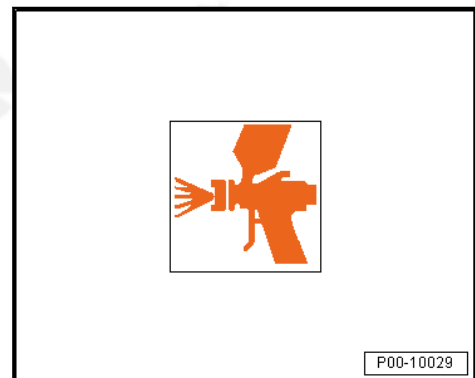


### Reworking - Three-coat pearl effect color shades

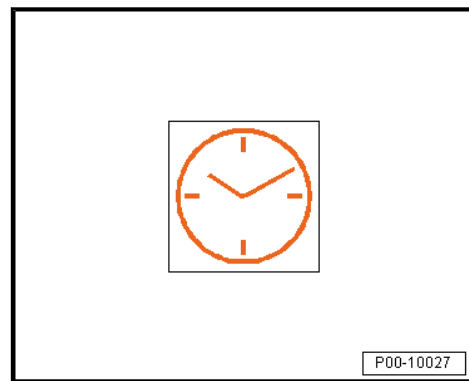
Instructions: Touch-up system (for attaining an optically perfect color shade transition to the adjacent parts)

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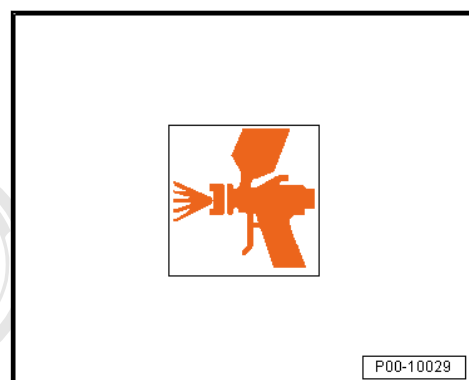
- Using reduced pressure, touch-up the filled area with solid water-based paint which has been prepared for spraying. Refer to base paint processing.



- Pay attention to the drying times.



- Using pearlescent water-based paint which has been prepared for spraying, spray the same areas again (with reduced pressure) and match it with the original.
- Blow dry with the gun after each spray application.



## Products, Processing

- ◆ The spray devices should be suitable for use with water-soluble products. See reference sheets.
- ◆ The mixing paint in this top coat series can only be used within the color tone formulas. When processing individual mixing paints on their own, major deviations from the information given in the reference sheets are possible.

## Work Equipment, Cleaning

- Rinse before and after using with Aquaplast Purified Water LVW 010 000 A5.
- Rinse with Nitro Thinner LVE 856 000 A3.

Refer to the system reference sheet ⇒ Work Equipment and Spray Guns, Cleaning , for specific information.



## Disposal

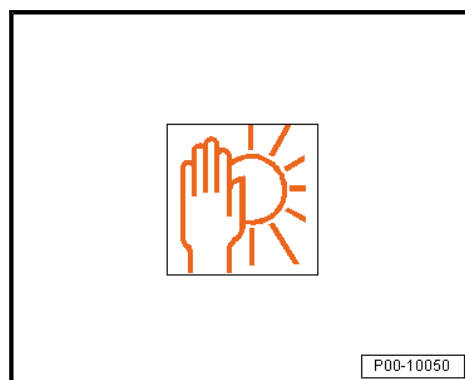
- ◆ Collect liquid waste from water-soluble products and separate from liquid waste from conventional products.
- ◆ When mixing materials, disposal may no longer be possible. In any case this will make disposal more difficult and thus costly.
- ◆ For specific information, refer to ⇒ System Reference Sheet No. 9.15 .

## 4.6.3 AquaPlus Touch-Up System

### Storage

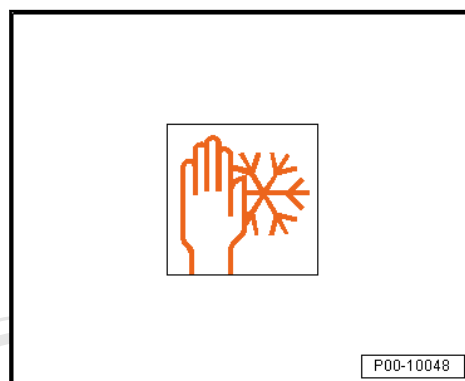
Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### Storage Conditions

- ◆ The optimal storage temperature is between +5 °C to +35 °C (41 °F to 95 °F).
- ◆ Temperatures that do not fall within this range can cause damage to the product.



### Characteristics

Flashpoint:	above +23 °C (73.4 °F)
-------------	------------------------

### Product Description

Touch-Up Additive for Aquaplus LVM 030 000 A2 is especially suitable for painting AquaPlus water base paint. This serves to simplify the touch-up process.

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### Suitable base surfaces

- ◆ Primed and filled surfaces (two-part HS filler)
- ◆ Hardened, solvent-resistant, well-preserved and sanded old paint or factory paints

Suitable pre-treatment materials:

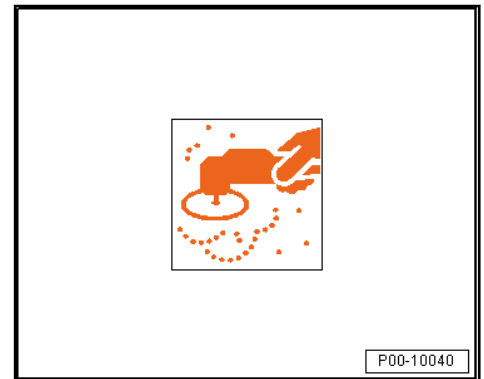
- ◆ Dependent on the object and base surface in accordance with the structure recommendations.

### Base, preparation

- Clean the factory or old paint or two-part HS filler thoroughly with Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.



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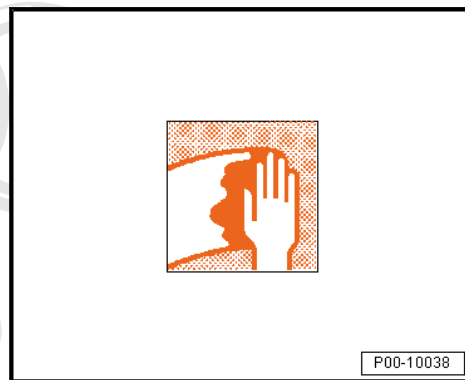
- Or wet-sand with P800 to 1000 grit wet sandpaper.



- Sand the area to be painted (area of undamaged original paint) using P1000 to P1200 grit wet sandpaper.

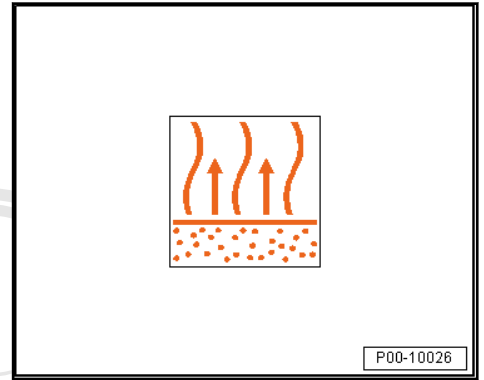


- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



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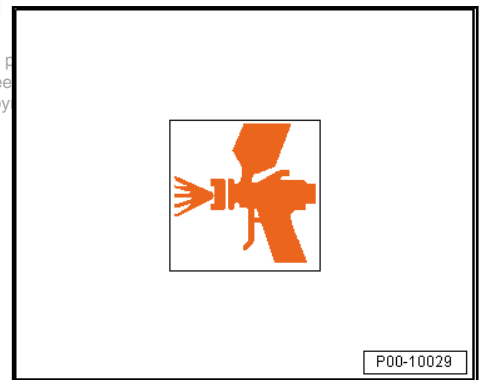
- Allow wet-sanded surfaces and cleaned surfaces to dry completely.



## Processing

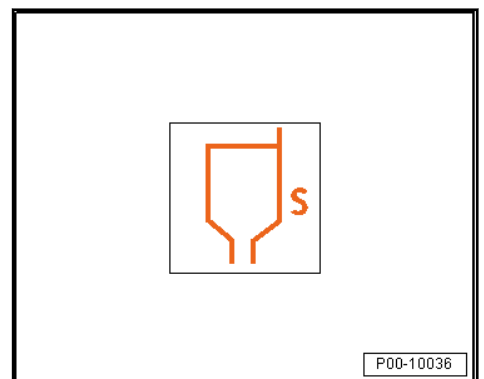
- Perform the application type coat.

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- Note the processing viscosity 4 mm at +20 °C (68 °F), German Industry Standardization 53211.

The processing viscosity is ready for application.



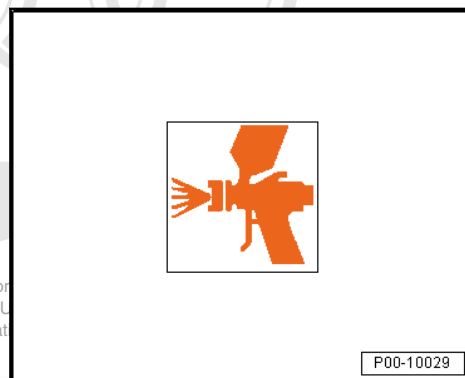


### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

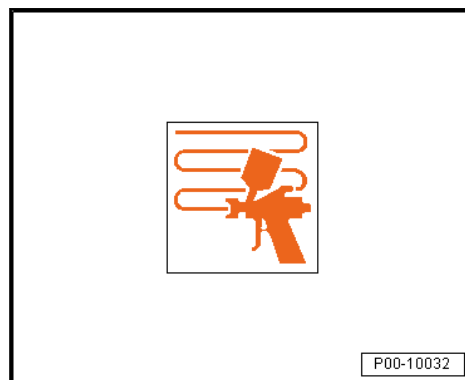
	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.3	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	WSB/1.3		0.7 bar (10.15 psi)

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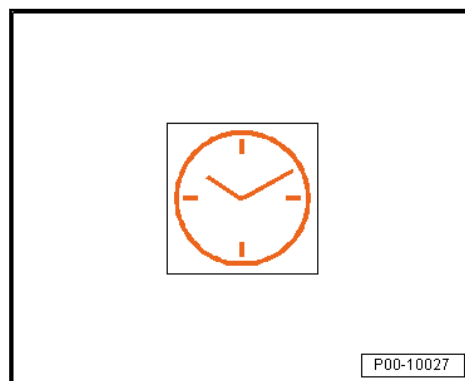
- Depending on the color and covering capacity, apply three to five spray applications of the adjusted AquaPlus water-based base paint to the damaged areas using reduced pressure from 0.8 to 1.5 bar (11.6 to 21.76 psi).

No matter what it says in the manufacturer notes, the initial pressure for this system should be reduced, as specified here.



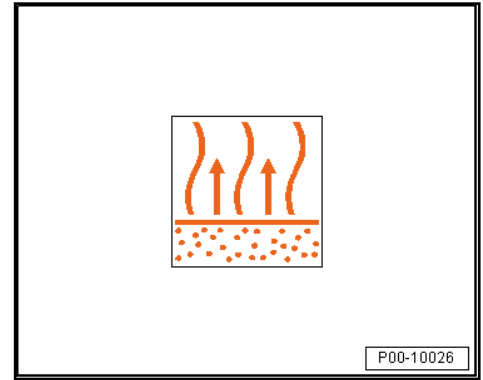
### Drying

- Pay attention to the flash-off time for clear coat application, which is 15 to 20 minutes at 20 °C (68 °F) room temperature.

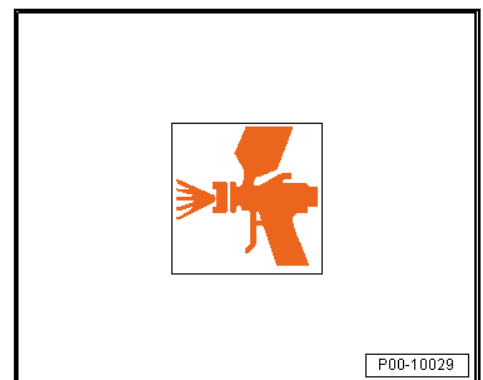


- Perform options for reducing the flash-off time:
- ◆ The formation of the matte finish on the painted surface can be accelerated by blowing with a blower nozzle or forced drying (OR or oven drying).
- ◆ Blowing with a spray gun is also possible after waiting at least five minutes.

The drying time is at least five minutes.



- Do not use this product unaltered.
- Can be painted over with two-part HS clear coat.



## 4.7 AquaPremium, Top Coats

⇒ [“4.7.1 AquaPremium System”, page 167](#)

⇒ [“4.7.2 AquaPremium Touch-Up System”, page 180](#)

⇒ [“4.7.3 AquaPremium System for Painting Rims”, page 188](#)

⇒ [“4.7.4 AquaPremium, Silver”, page 196](#)

### 4.7.1 AquaPremium System

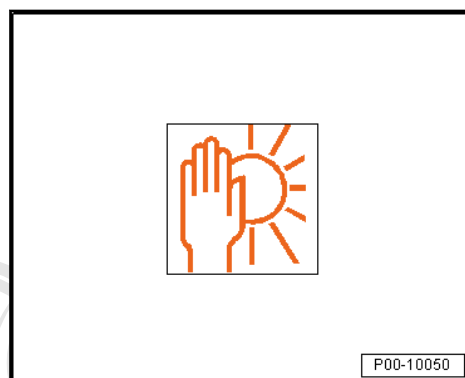
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## Storage

Guaranteed shelf life is:

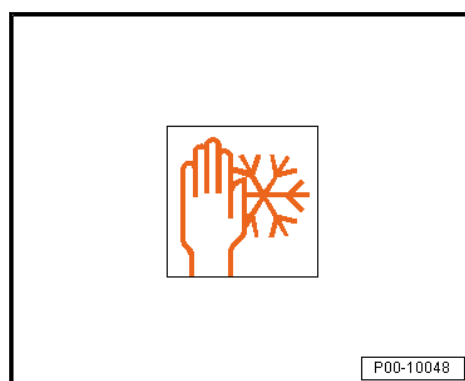
- ◆ Water-Based Solid Mixed Paint LWM 083 ... 48 months from production date.
- ◆ Exception: LWM 083 328, LWM 083 331, LWM 083 150 and Maron LWM 083 332 24/36 months from production date.
- ◆ Exception: Super-Deep Black LWM 083 388 A2, 48 months from production date.
- ◆ Water-Based Metallic/Pearl Effect/Special Effect Mixed Paint LWM 084/86 ... 24 months from the production date.
- ◆ Silver Mixed Paints LWM 084/086 ... 24 months from the production date.
- ◆ Pearlescent Mixed Paints LWM 084/086 ... 36 months from production date.
- ◆ AquaPremium Solid Color/Base Paint LWG 055 ... 24 months from the production date.
- ◆ Water-Based Metallic Base Paint LWG 056 ... 18/24 months from the production date.
- ◆ Water-Based Pearl Effect Base Paint LWG 057 ... 18/24 months from the production date.
- ◆ Additive for AquaPremium LWM 035 200/LWM 035 301, 24 months from production date.
- ◆ Flop Control LWM 085 386, 48 months from production date.
- ◆ System Component A LWM 083 385 A3, 24 months from the production date.
- ◆ System Component B LWM 085 387 A3, 24 months from the production date.
- ◆ Touch-Up Additive For AquaPremium LWM 035 100 / 110, 24 months from production date.
- ◆ Hardener for AquaPremium LWM 045 000, 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Storage Conditions

- ◆ The optimal storage temperature is +20 °C (68 °F).
- ◆ The preferred temperature is between +15 °C and +25 °C (59 °F and 77 °F).
- ◆ For short-term storage (a few days), between +5 °C and +35 °C (41 °F and 95 °F) is acceptable.



## VOC value

Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.

## Definition

- ◆ Water-Based Solid Mixed Paint LWM 083 ...
- ◆ Water-Based Metallic/Pearl Effect/Special Effect Mixed Paint LWM 084/ 086...
- ◆ Water-Based Solid Base Paint LWG 055 ...
- ◆ Water-Based Metallic Base Paint LWG 056 ...
- ◆ Water-Based Pearl Effect Base Paint LWG 057 ...
- ◆ Flop Control LWM 085 386 A2
- ◆ System Components A LWM 083 385 A3
- ◆ System Components B LWM 085 387 A3

## Properties

The AquaPremium System is an innovative, water-soluble base paint system. The mixing system contains all solid and effect color shades for vehicle repair paintwork.

- ◆ Easy and to quick process
- ◆ Even impact alignment ensures high certainty of outcome
- ◆ Short process times
- ◆ Easy and safe painting
- ◆ Various application possibilities, interior, multiple-coat and multi-color coats

## Suitable base surfaces

- ◆ Primed and filled surfaces, two-part HS filler
- ◆ Intact old paint
- ◆ for plastic surfaces, Glazing Bonding Agent LVM 823 000 A2 and two-part HS filler, elastified
- ◆ With Two-Part Plastic Adhesive Filler LKF 696 009 A2/Two-Part Plastic Adhesive Filler LKF 696 040 A2 insulated base surfaces on plastic surfaces

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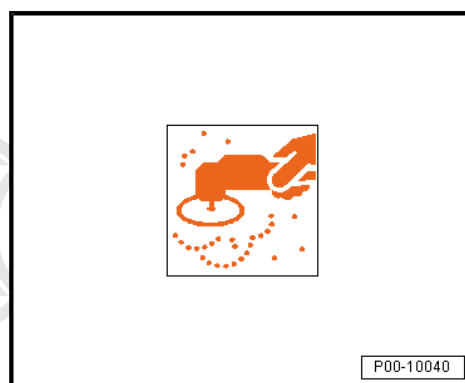


### Base, preparation

- Clean the factory or old paint or two-part HS filler thoroughly with Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Perform dry sanding using a rotary sander, with P500 to P600 dry sanding paper and dust extraction.



- Or wet-sand with P800 to 1000 grit wet sandpaper.

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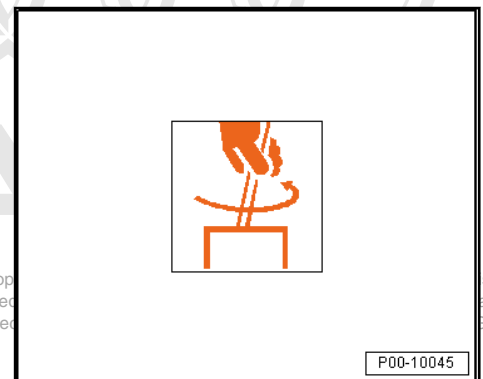
- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks.
- ◆ Sanded-through areas must be insulated with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2. The sanded-through areas should not be larger than 5.0 cm in diameter.
- ◆ When using the two-part HS filler, any bare areas must be insulated with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2.



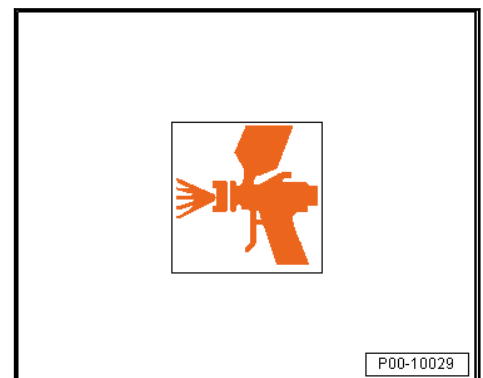
### Processing Standard

- Use plastic containers or tin-coated cans painted on the inside as mixing containers.

- Add additive.
- Process AquaPremium System within 24 hours.

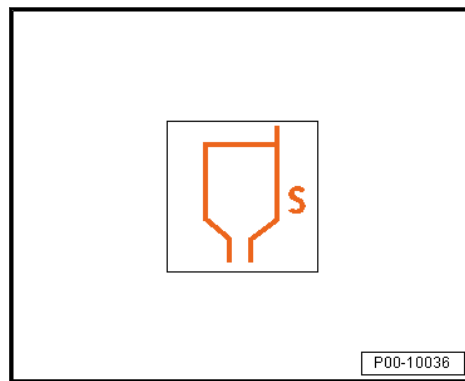


- Perform compliant application type.

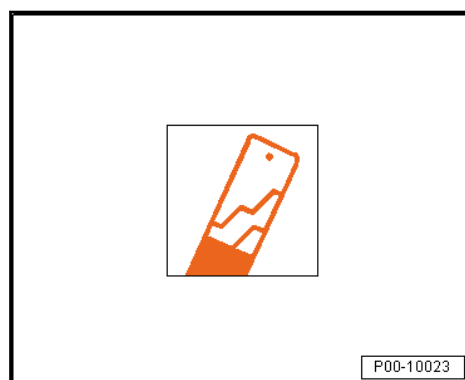


Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for “Compliant” and “HVLP”.

- Mixing viscosity.



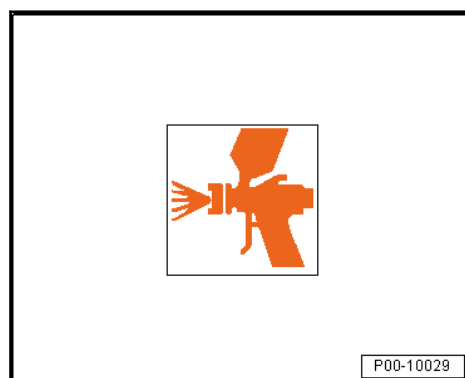
- For solid colors, add 10% additive for AquaPremium LVM 035 200 A3/LVM 035 301 A3 at +20 °C (68 °F) material temperature.
- For metallic, pearl effect colors, add 20% additive for AquaPremium LVM 035 200 A3/LVM 035 301 A3 at +20 °C (68 °F) material temperature.



### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.3	1.8 - 2.0 bar (26.11 - 29.01 psi)	
SATA RP 1.2/RP 1.2W Devilbiss GTi Pro Lite TE20	1.2		
HVLP			0.7 bar (10.15 psi)



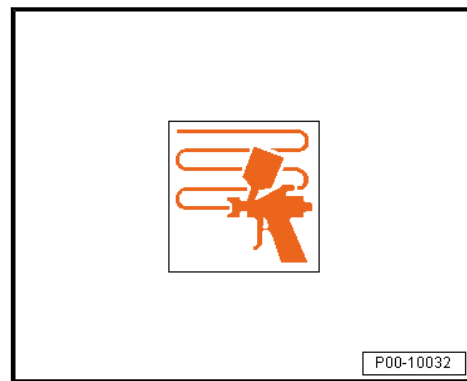
### 1.5 spray applications:

First, apply a normal paint application.

After, apply a finish/effect spray.

- Apply 1.5 spray coats.

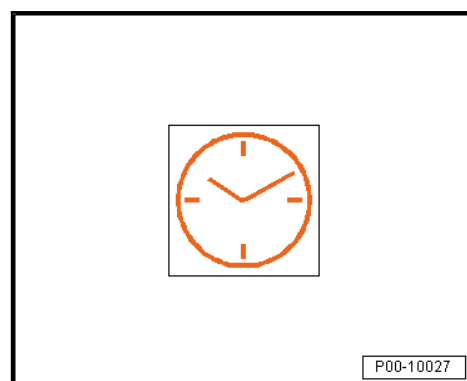
For colors with low coverage properties, after allowing for flash-off time it may be necessary to apply another spray application (wet on dry).



## Drying

The flash-off time for a clear coat application should be long enough for the surface to become completely matted.

Can be painted over with two-part HS clear coat. Refer to ➔ [“4.9 Clear Coats”, page 204](#) .

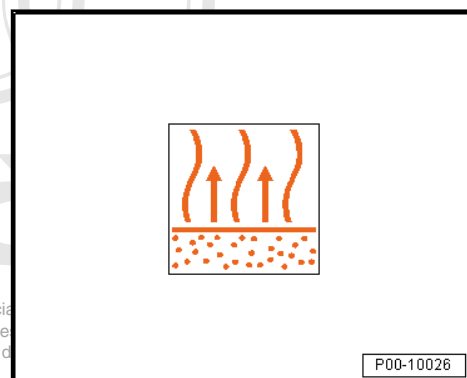


For smaller surfaces, the following make it possible to reduce the flash-off time:

- ◆ A matte finishing of painted surfaces can be achieved more quickly by blowing them with blower nozzles (hand blowers or with stationary devices).
- ◆ Blowing with a spray gun is also possible after waiting at least five minutes.

For larger surfaces, the following make it possible to reduce the flash-off time:

- ◆ The painted surfaces can be applied more quickly by using stationary blowing devices (such as ceiling systems), infrared radiators or oven drying.



## Three layer color processing and multi-color paintwork

Three layer color processing and multi-color paintwork:

Hardener:

- ◆ Aqua Premium Hardener LVM 045 000 A1

Additive at high temperature and low humidity:

- ◆ Additive for AquaPremium LVM 035 301 A3



- ◆ Use AquaPremium measuring stick for three-coat colors.

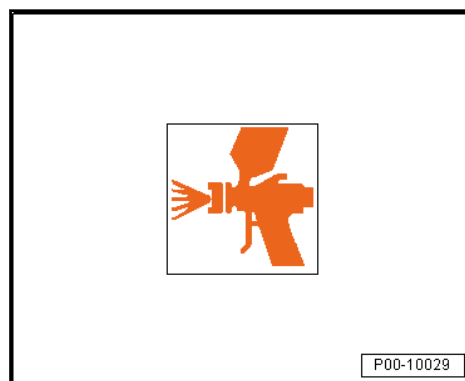
- Add additive.
- Process the AquaPremium System within 24 hours.

Processing time at +20 °C (68 °F) room temperature:

- ◆ Solid colors 90 to 120 minutes
- ◆ Effect color 45 to 60 minutes

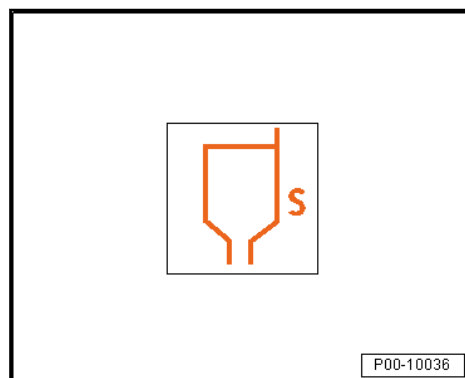


- Perform compliant application type.

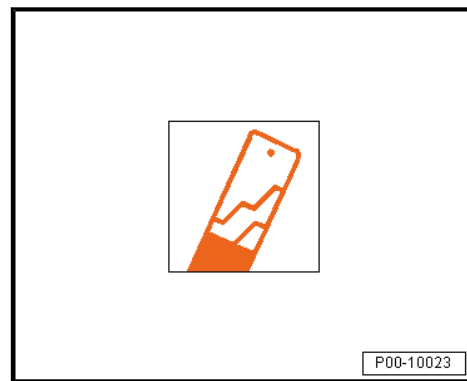


Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for "Compliant" and "HVLP"

- For three-layer colors in primary shade only, add 5% AquaPremium Hardener LVM 045 000 A1.

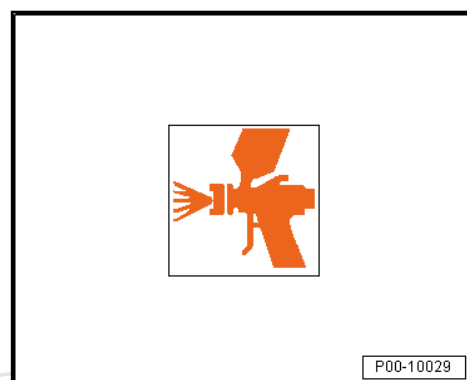


- For solid colors, add 10% additive for AquaPremium LVM 035 301 A3 at +20 °C (68 °F) material temperature.
- For metallic/pearl effect colors, add 20% additive for AquaPremium LVM 035 301 A3 at +20 °C (68 °F) material temperature.



- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.3	1.8 - 2.0 bar (26.11 - 29.01 psi)	
SATA RP 1.2/RP 1.2W Devilbiss GTi Pro Lite TE20	1.2		
HVLP			0.7 bar (10.15 psi)



#### 1.5 spray applications:

First, apply a normal paint application.

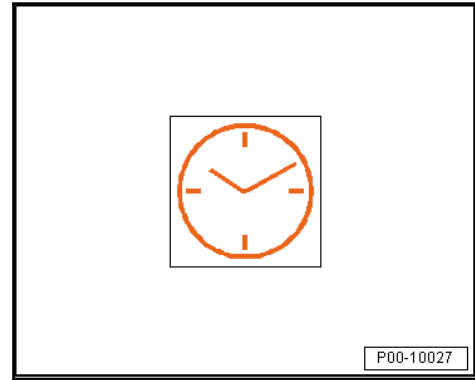
After, apply a finish/effect spray.

- Apply 1.5 spray coats.

For colors with low coverage properties, after allowing for flash-off time it may be necessary to apply another spray application (wet on dry).



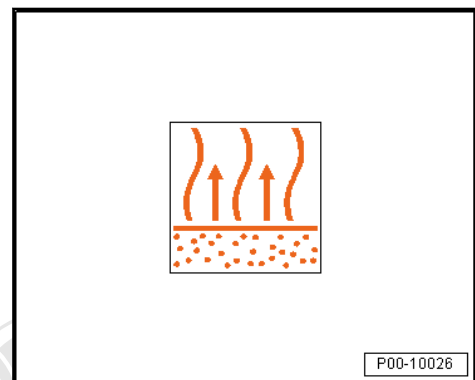
The flash-off time for a clear coat application should be long enough for the surface to become completely matted, without blow drying.



The ventilation time should take place assisted with blowing devices at 20 to 40 °C (68 to 104 °F) for 5 to 10 minutes until the surface becomes completely matted.

The final ventilation time is 10 to 15 minutes at 60 to 65 °C (140 to 149 °F).

Let the foundation cool off before applying the effect.

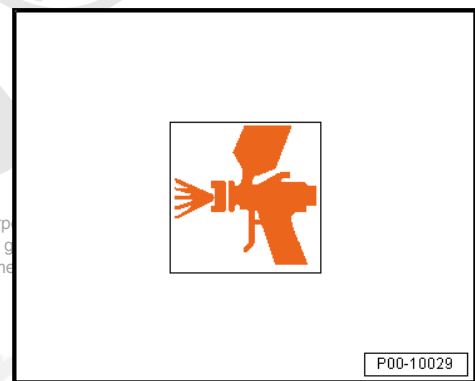


Can be painted over with:

- ◆ Effect color
- ◆ Two-part HS clear coat up to maximum of 72 hours after applying the base paint

For multi-color paintwork, the recommended tape is the "blue couture tape".

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## Processing interior paintwork without applying clear coat

Application:

- ◆ Application areas are the vehicle interior, for example engine compartment and luggage compartment inner sides, where satin-finish and resistant surface without additional clear coating is desired.

Hardener:

- ◆ AquaPremium Hardener LVM 045 000 A1

Additives at a normal/high temperature and low humidity, depending on respective object sizes:

- ◆ Additive for AquaPremium LVM 035 200 A3
- ◆ Additive for AquaPremium LVM 035 301 A3
- ◆ Use an AquaPremium measuring stick for interior paint.

Processing time at +20 °C (68 °F) room temperature:

- ◆ Solid colors 90 to 120 minutes
- ◆ Effect color 45 to 60 minutes

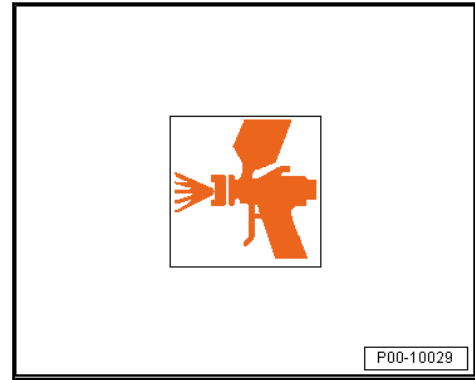
– Pay attention to the information about processing the products:

- ◆ The spray devices should be suitable for use with water-soluble products. See reference sheets.
- ◆ The mixing paint in this top coat series can only be used within the color tone formulas. When processing individual mixing paints on their own, major deviations from the information given in the reference sheets are possible.
- ◆ Do not let the mixer mix for more than 2 x 15 minutes within 24 hours.
- ◆ The AquaPremium System should be at room temperature +18 - 25 °C (64.4 - 77 °F) before use.
- ◆ New unopened mixed paint containers should be appropriately mixed before use.
- ◆ Before processing AquaPremium water-based base paint using a cup system, for example SATA or 3M, filter it through water-tight 125 µm strainers.
- ◆ All equipment items that come in contact with the AquaPremium System must be approved for water-based products.
- ◆ It is possible to shorten the flash-off time by using a blower nozzle or blower gun, booth air nozzle system or raising the temperature.
- ◆ Pay attention to the additional heating time to the object temperature.
- ◆ **All specified ventilating and flash-off times are in relationship to the relevant humidity and the type of blowing device.**
- ◆ After adding Aqua-Premium Additive LVM 035 200/301 the AquaPremium System must be used within a work day.
- ◆ Aqua Premium Water-Based Base Paint, hardened or unhardened, must be covered with clear coat within 72 hours.
- ◆ Ready-to-use Aqua Premium Water-Based Base Paint, which is not activated, can be used within 6 months. Before use it must be refreshed with adding the same mixture ratio Aqua-Premium Additive LVM 035 200/301.
- ◆ It is recommended to spray a sample card before spraying the vehicle. The new addition of Aqua-Premium Additive LVM 035 200/301 can influence the coverage.

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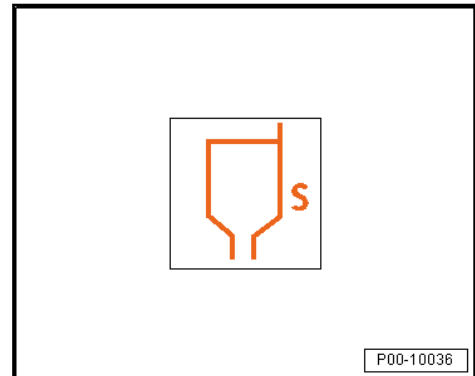


- Perform compliant application type.



Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for “Compliant” and “HVLP”.

- Add 10% AquaPremium Hardener LVM 045 000 A1 to the color.



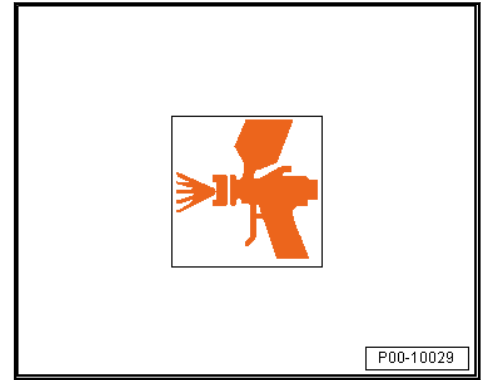
- For solid colors, add 10% additive for AquaPremium LVM 035 200 A3/LVM 035 301 A3 at +20 °C (68 °F) material temperature.
- For metallic, pearl effect colors, add 20% additive for AquaPremium LVM 035 200 A3/LVM 035 301 A3 at +20 °C (68 °F) material temperature.



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- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.2 - 1.3	1.8 - 2.0 bar (26.11 - 29.01 psi)	
SATA RP 1.2/RP 1.2W Devilbiss GTi Pro Lite TE20	1.2		
HVLP			0.7 bar (10.15 psi)



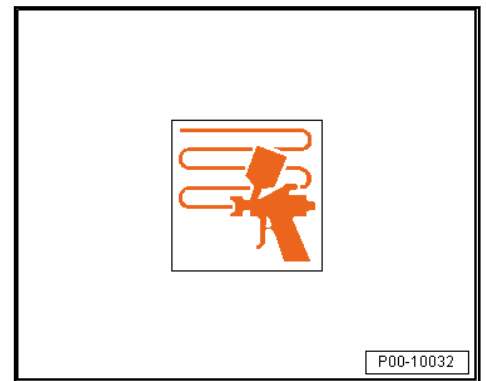
#### 1.5 spray applications:

First, apply a normal paint application.

After, apply a finish/effect spray.

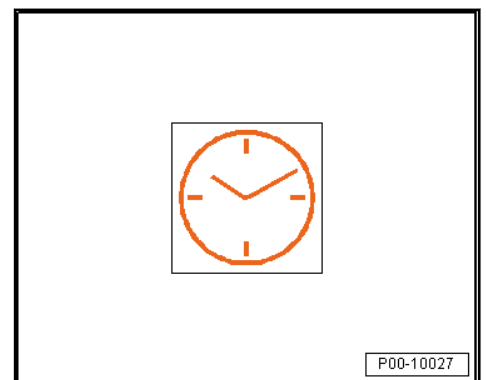
- Apply 1.5 spray coats.

For colors with low coverage properties, after allowing for flash-off time it may be necessary to apply another spray application (wet on dry).



Let air dry overnight at +20 °C (68 °F) room temperature.

Alternatively, the drying can take place at 60 to 65 °C (140 to 149 °F) for 15 to 20 minutes oven drying.





### Work Equipment, Cleaning

- Rinse before and after using with Aquaplast Purified Water LVW 010 000 A5.
- Rinse with Nitro Thinner LVE 856 000 A3.

Refer to the system reference sheet ⇒ Work Equipment and Spray Guns, Cleaning , for specific information.



### Disposal

- ◆ Collect liquid waste from water-soluble products and separate from liquid waste from conventional products.
- ◆ When mixing materials, disposal may no longer be possible. In any case this will make disposal more difficult and thus costly.
- ◆ For specific information, refer to ⇒ System Reference Sheet No. 9.15 .

## 4.7.2 AquaPremium Touch-Up System

### Product Description

To achieve an optically flawless color shade transition in the blended area or adjacent parts, for example fender or door.

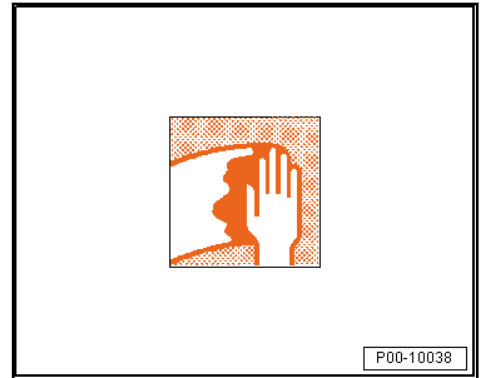
### Suitable base surfaces

- ◆ Primed and filled surfaces (two-part HS filler)
- ◆ Intact old paint
- ◆ With Two-Part Plastic Adhesive Filler LKF 696 009 A2/Two-Part Plastic Adhesive Filler LKF 696 040 A2 insulated base surfaces on plastic surfaces

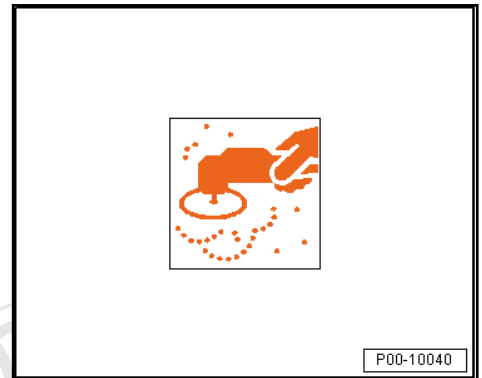
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**Base, preparation**

- Clean the factory or old paint or two-part HS filler thoroughly with Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Perform dry sanding using a rotary sander, with P500 dry sanding paper and dust extraction.



- Or wet-sand with P800 to 1000 grit wet sandpaper.



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If beading, edges or grip recesses are present, use a sanding pad beforehand.

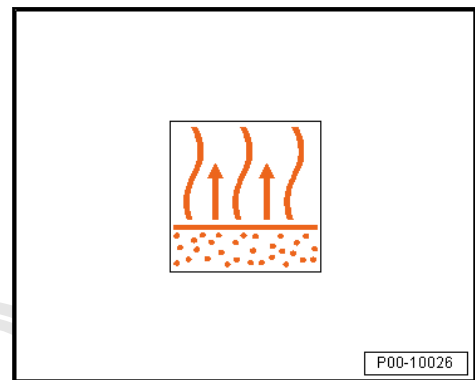
- Sand the bordering area/part around the repair area thoroughly with P1000-3000 grit sandpaper or an ultrafine sanding pad.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks.



- Allow wet-sanded surfaces and cleaned surfaces to dry completely.



#### Condition

- When using dust extraction, use next generation towels with an effective light adhesive formula to minimize the risk of chemical or adhesive residue.
- Sanded-through areas must be insulated with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2. The sanded-through areas should not be larger than 5.0 cm in diameter.
- When using the two-part HS filler, any bare areas must be insulated with Two-Part Wash Primer LHV 043 000 A2 or

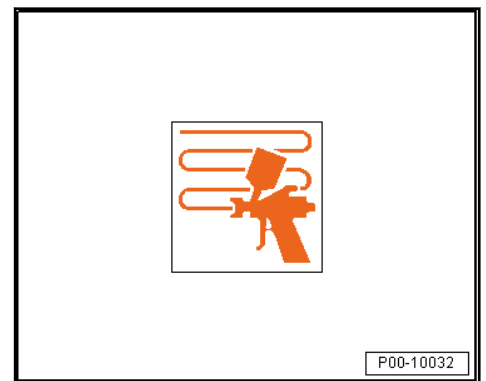
One-Part Wash Primer LVM 044 007 A2/One-Part Wash  
Primer LVM 044 171 A2.

#### Touch-up painting inside surface, for example side panel

- Pre-treat the base surface.



- Apply one to two complete spray applications of the Touch-Up Additive for AquaPremium LVM 035 100 A3 with normal pressure in each touch-up area around the repair area.

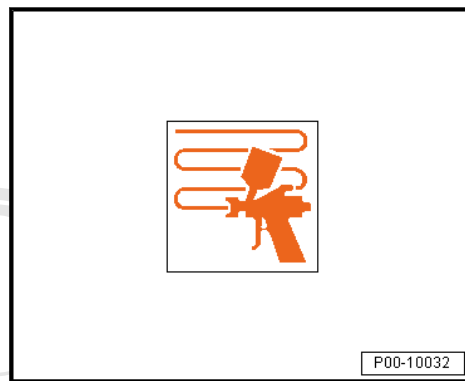


- Apply the first spray application of the adjusted water-based base paint to the repair area up to the edge of the wet touch-up additive.
- Apply a half effect/finishing spray application with a greater spray distance into the wet touch-up additive.
- Make sure that the touch-up area is larger/wider than the repair area and that it lies on the wet Touch-Up Additive For AquaPremium LVM 035 100 A3.



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- Apply two-part HS clear coat onto the entire repair area after allowing to ventilate.
- ◆ While processing the AquaPremium water-based base paint, the spray gun material flow/trigger remains completely open.
- ◆ The spraying pressure for the effect spray application can vary between 1.5 and 2.0 bar (21.76 and 29.01 psi) depending on the size of the object.



## Touching-up minimal damage for example Clever Repair.

### Mixing ratio

#### Condition

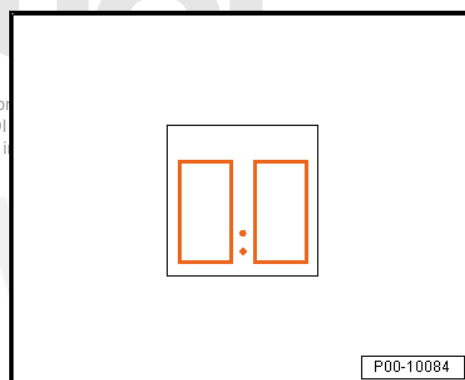
- Keep the repair/filler area as small as possible.

#### Option 1:

- ◆ For most colors, adjusted water-based base paint is used.

Option 2, recommended for colors with a very high metallic component percentage:

- ◆ AquaPremium water-based base paint at a mixture ratio of 1:1 with touch-up additive, for AquaPremium LVM 035 100 A3 + 10%.



- Pre-treat the base surface.

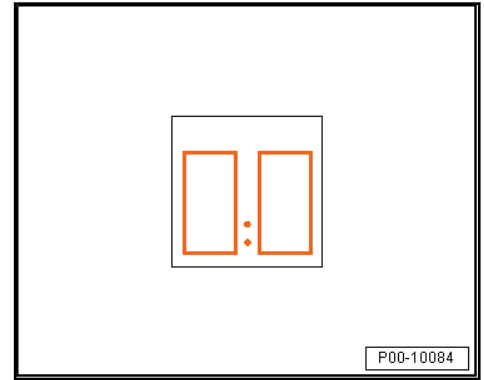


An additive for AquaPremium LVM 035 200/301 ... is not necessary.

- Adjust the Flop Control LWM 085 386 A2.

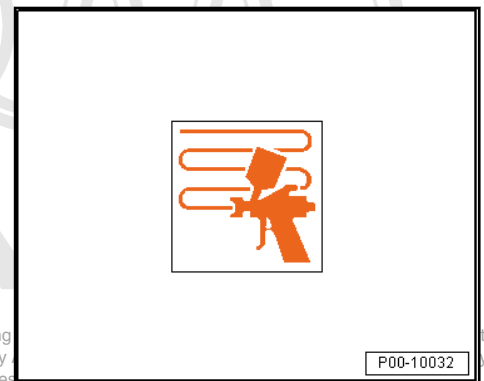
#### Condition

- Use the AquaPremium measuring stick for Clever Repair to adjust the mixing ratio.



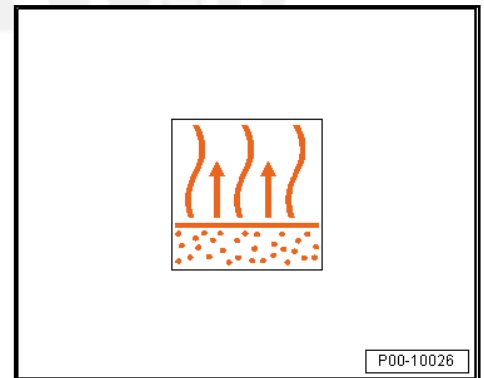
- Depending on the color and covering capacity, apply three to five light spray applications of this mixture with reduced pressure, 0.8 to 1.5 bar (11.6 to 21.76 psi), to the repair area/run-off area.
- Make sure that each spray application is performed a little bit further and ventilated to form a matte finish.

The flash-off time can be accelerated by blowing.



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- After an appropriate final flash-off time, paint over with two-part HS clear coat.



### Touching-up three layer colors

- Pre-treat the base surface.

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### Test spraying on sheet metal is recommended.

- Apply the primary color shade, adjusted for the 5% AquaPremium Hardener LVM 045 000 A1 and 10% Additive For AquaPremium LVM 035 200 A3/LVM 035 300 ... for solid colors or 20% Additive For AquaPremium LVM 035 200 A3/LVM 035 300 ... for effect colors, onto the repair area and on the bordering touch-up area up to the covering capacity.

#### Condition

- Use AquaPremium measuring stick for three-coat colors to adjust to the mixture ratio.
- Pay attention to the drying times.



P00-10032

- Apply one to two complete spray applications of the Touch-Up Additive For AquaPremium LVM 035 100 A3 with normal pressure to each base color run-out area or bordering component.
- Apply going from the run-out area to the repair area. This means, apply the first effect color spray application in the run-out area to the touch-up additive for AquaPremium LVM 035 100 A3, wet in wet.



P00-10032

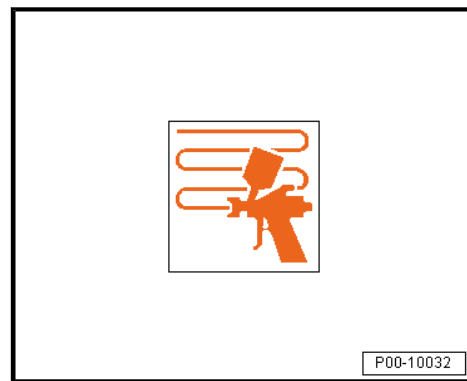
For a better assessment, it is recommended to test spray on sheet metal before every spray application.

- Paint the next effect color layer near the repair area.

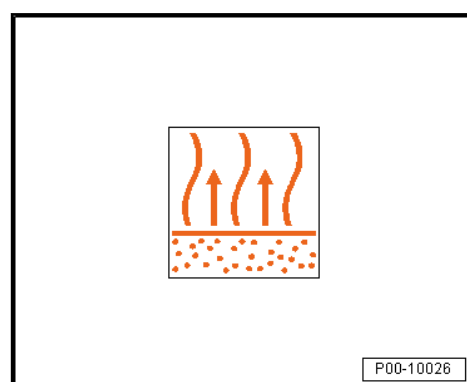
For some effect colors, it is necessary to apply two to three more spray applications to achieve the desired optical effect.

Normally, apply spray applications wet-on-wet and without intermediate ventilation.

- Starting with the first spray application, even out the subsequent repair area/base color spray applications starting from the touch-up area that is farthest out.
- Apply the following spray applications in a way that they are always within the previous spray pattern in order to avoid visible edges/shadows.



- Apply two-part HS clear coat onto the entire repair area after allowing to ventilate.
- ◆ While processing the AquaPremium water-based base paint, the spray gun material flow/trigger remains completely open.
- ◆ The spraying pressure for the effect spray application can vary between 1.5 and 2.0 bar (21.76 and 29.01 psi) depending on the size of the object.
- ◆ For efficient ventilating and drying, stationary blowing devices or forced drying (for example oven drying) are recommended.



## Products, Processing

- ◆ The spray devices should be suitable for use with water-soluble products. See manufacturer's information.
- ◆ The mixing paint in this top coat series can only be used within the color tone formulas. When processing individual mixing paints on their own, major deviations from the information given in the reference sheets are possible.

## Work Equipment, Cleaning

- Rinse before and after using with Aquaplast Purified Water LVW 010 000 A5.
- Rinse with Nitro Thinner LVE 856 000 A3.

Refer to the system reference sheet – Work Equipment and Spray Guns, Cleaning , for specific information.



## Disposal

- ◆ Collect liquid waste from water-soluble products and separate from liquid waste from conventional products.
- ◆ When mixing materials, disposal may no longer be possible. In any case this will make disposal more difficult and thus costly.
- ◆ For specific information, refer to ⇒ System Reference Sheet No. 9.15 .

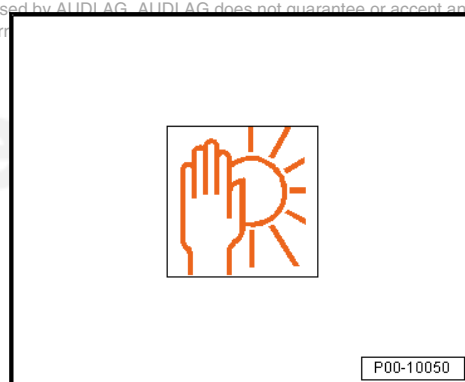
## 4.7.3 AquaPremium System for Painting Rims

### Storage

Guaranteed shelf life of 24 months from production date.

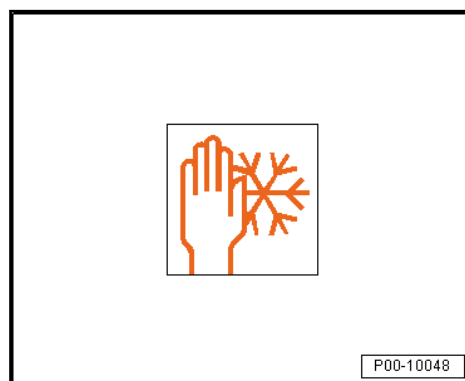
Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

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### Storage Conditions

- ◆ The optimal storage temperature is between +5 °C to +35 °C (41 °F to 95 °F).
- ◆ Temperatures that do not fall within this range can cause damage to the product.



### VOC value

Flashpoint:	above +23 °C (73.4 °F)
-------------	------------------------

VOC value: 2004/42/IIB (d)  
(420) 420

The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.

### Properties

After painting over with two-part HS clear coat it produces a high-gloss, weatherproof top coat.

- ◆ High stability under load
- ◆ High covering capacity
- ◆ Can be painted over with two-part HS clear coat

### Suitable base surfaces

- ◆ Primed or filled surfaces with Two-Part HS Vario Filler, Gray, LGF 786 004 A4
- ◆ Factory or old paint, excluding thermoplastic coatings

### Base, preparation

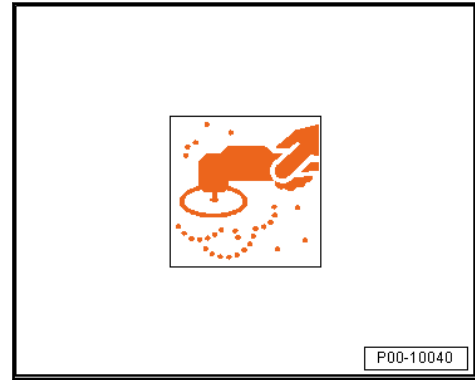
- Thoroughly clean factory or old paint using Silicone Remover, Diluted, LSW 019 000 A5, or beforehand with Silicone Remover, Long LVM 020 100 A5 if very dirty.

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P00-10038

- Perform dry sanding using a rotary sander, with P1000 to P1500 grit dry sanding paper and dust extraction.
- Sand spokes, corners and edges by hand with an Ultra-Fine/P3000 sanding pad.



- Before reworking, carefully clean the sanded base surfaces of dust, sanding residue and other dirt with Silicone Remover, Diluted, LSW 019 000 A5. If very dirty, clean beforehand using Silicone Remover, Long LVM 020 100 A5.

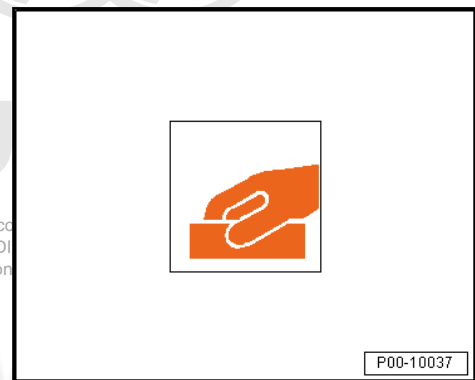


- Pretreat by sanding the filler.

#### Condition

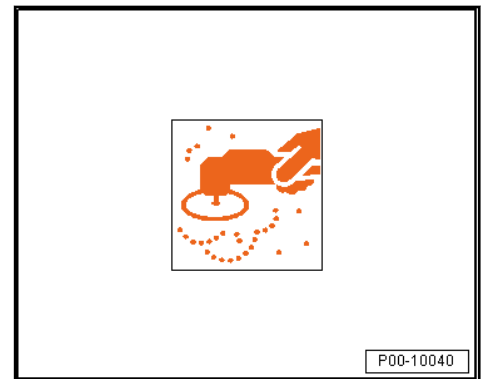
- Uncoated areas must be primed with Two-Part Wash Primer LHV 043 000 A2 when using Two-Part HS Vario Filler, Gray LGF 786 004 A4.
- It is essential to have even base surfaces that are free of sanded-through areas.

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### Grinding

- Perform dry sanding using a rotary sander, with P500 dry sanding paper and dust extraction.



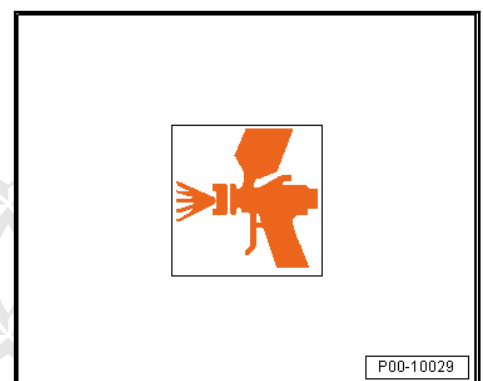
- Or wet-sand with P800 to 1000 grit wet sandpaper.



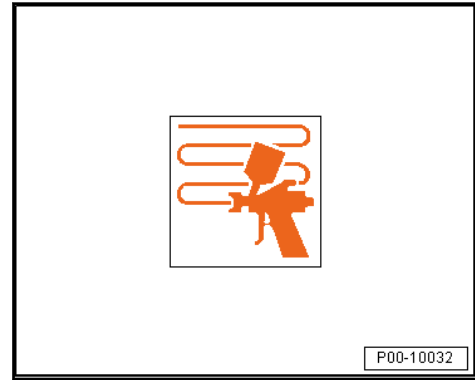
### Application

- Clear coat on the filler: apply two-part HS clear coat onto the sanded filler.

Depending on the size of the repair area or if there are many repair areas, it is recommended to apply two-part HS clear coat to the entire rim.

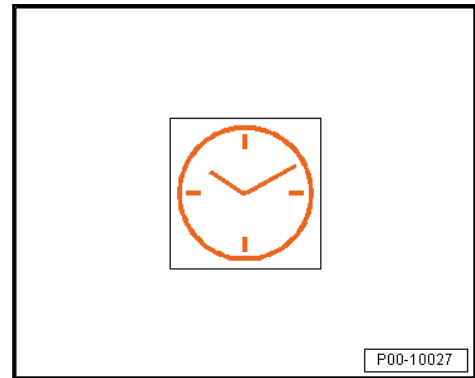


- Apply a preliminary spray application, approximately 20 µm.



### Drying

- Keep in mind forced drying at +60 °C (140 °F) object temperature for 20 to 25 minutes.



### Grinding

- Perform dry sanding using a rotary sander, with P1000 to P1500 grit dry sanding paper and dust extraction.
- Sand spokes, corners and edges by hand with an Ultra-Fine/P3000 sanding pad.



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## Cleaning

- Before reworking the sanded base surfaces, carefully clean them again of dust, sanding residue and other dirt with Silicone Remover LVM 020 000 A5.



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## Application

- Perform the application type coat.

Additive for AquaPremium LVM 035 301 A1 can be used as an additive.



P00-10029

## Processing viscosity

- Note the processing viscosity 4 mm for +20 °C (68 °F), German Industry Standardization 53211.

Processing viscosity 4 mm at +20 °C (68 °F) material temperature is the mixing viscosity for "Compliant" and "HVLP".

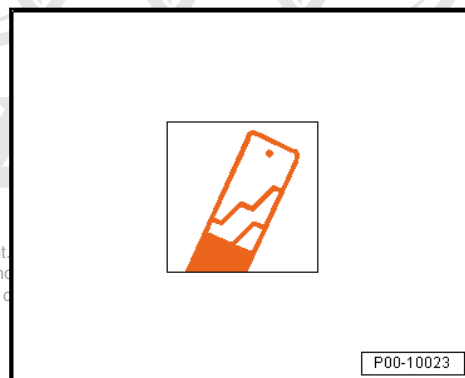


P00-10036

## Thinner

- Add 50% Additive for AquaPremium LVM 035 301 at +20 °C (68 °F) material temperature.

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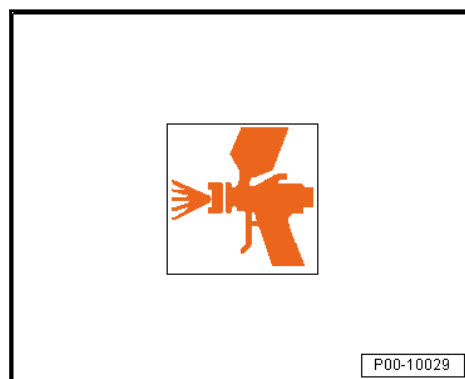


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## Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
HVLP	1.2 - 1.3		0.7 bar (10.15 psi)
Compliant	1.2 - 1.3	2 bar (29.01 psi)	



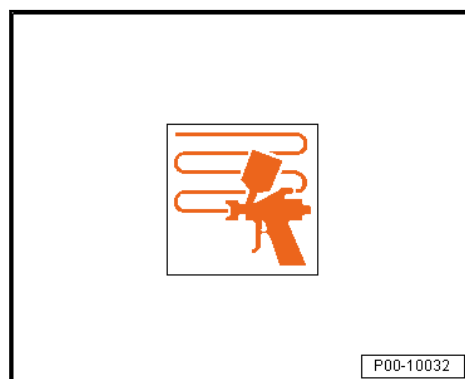
## Application

1.5 spray applications:

First, apply a normal paint application.

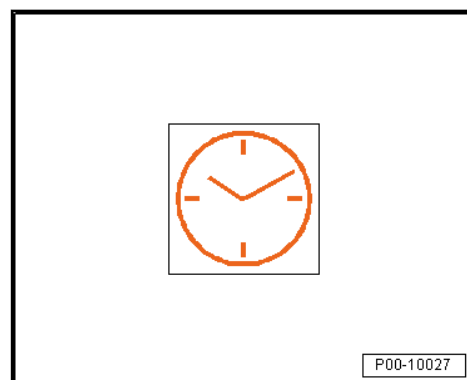
After, apply another spray application from a greater distance to the object.

- Apply 1.5 spray coats.
- ◆ The best results are achieved when using a 1.3 mm HVLP spray gun.
- ◆ Additive for AquaPremium LVM 035 200 A3/LVM 035 301 A3 should be added immediately before applying the Water-Based Metallic Base Paint, Silver LWG 056 H7 A1. The best result is achieved when the mixture is used within a working day.



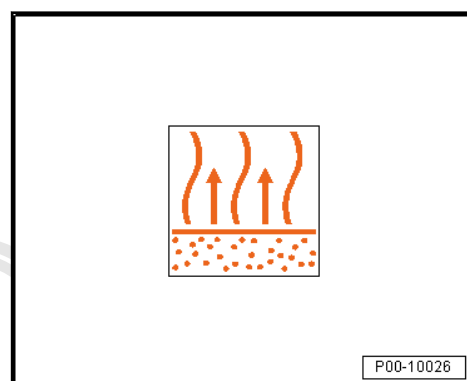
## Drying

- Pay attention to the flash-off time before clear coat application.



## Flashing-off

- Ventilate at +20 °C (68 °F) room temperature until matted.
- ◆ The best results are achieved when using a 1.3 mm HVLP spray gun.
- ◆ Additive for AquaPremium LVM 035 301 should be added immediately before applying the Water-Based Metallic Base Paint, Silver LWG 056 1H7 A1. The best result is achieved when the mixture is used within a working day.
- For smaller surfaces, the following make it possible to reduce the flash-off time:
  - ◆ The formation of the matte finish on painted surfaces can be accelerated by blowing with a blower nozzle or forced drying (OR or oven drying).
  - ◆ Blowing with a spray gun is also possible after waiting at least five minutes.
  - ◆ The drying time is at least five minutes.



The evaporating and drying times specified here depend on the temperature, humidity, air sink speed in the spray booth and the number of spray applications.

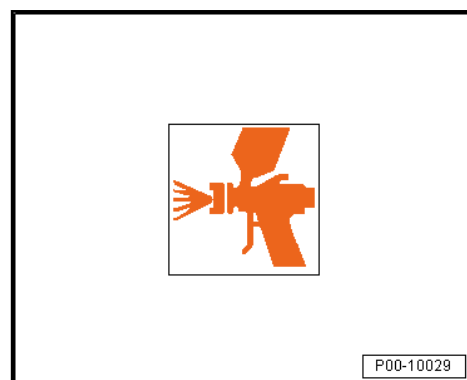
## Condition

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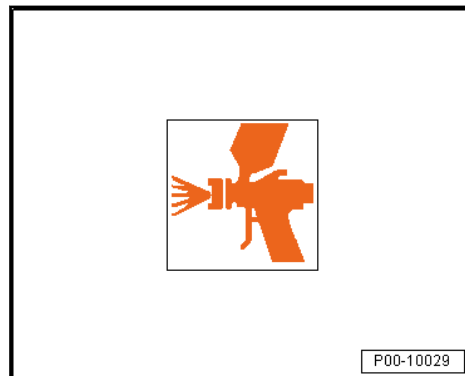
- Always wait until the painted surface is completely matte.

## Application

- Paint over using two-part HS clear coat (elasticized).



- Apply the touch-up with Water-Based Metallic Base Paint, Silver LWG 056 1H7 A1 in one to two normal spray applications.
- Apply the Touch-Up Additive For AquaPremium LVM 035 100 A3 to the run-out area.



### Products, Processing

- ◆ The spray devices should be suitable for use with water-soluble products. See manufacturer's information.
- ◆ The mixing paint in this top coat series can only be used within the color tone formulas. When processing individual mixing paints on their own, major deviations from the information given in the reference sheets are possible.

### Work Equipment, Cleaning

- Rinse before and after using with Aquaplast Purified Water LVW 010 000 A5.
- Rinse with Nitro Thinner LVE 856 000 A3.

Refer to the system reference sheet ⇒ Work Equipment and Spray Guns, Cleaning , for specific information.



### Disposal

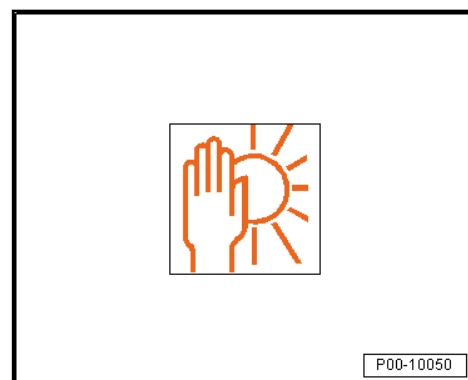
- ◆ Collect liquid waste from water-soluble products and separate from liquid waste from conventional products.
- ◆ When mixing materials, disposal may be no longer be possible. In any case this will make disposal more difficult and thus costly.
- ◆ For specific information, refer to ⇒ System Reference Sheet No. 9.15 .

### 4.7.4 AquaPremium, Silver

## Storage

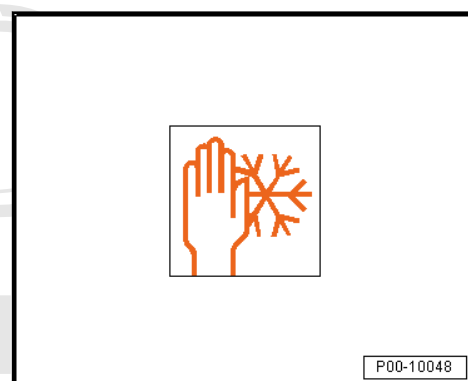
Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Storage Conditions

- ◆ The optimal storage temperature is between +5 °C to +35 °C (41 °F to 95 °F).
- ◆ Temperatures that do not fall within this range can cause damage to the product.
- ◆ Protect against frost



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## VOC value

Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.

## Product Description

- ◆ High stability under load
- ◆ High covering capacity
- ◆ VOC compliant

For rim paint using Metallic Water-Based Base Paint, Silver LWG 056 1H7 A1, refer to Refer to ➤ [“4.7.3 AquaPremium System for Painting Rims”, page 188](#) .

**Suitable base surfaces**

- ◆ Two-Part HS Wet-on-Wet Filler LVM 013 008/905 A4
  - ◆ Factory or old paint, excluding thermoplastic coatings
- 

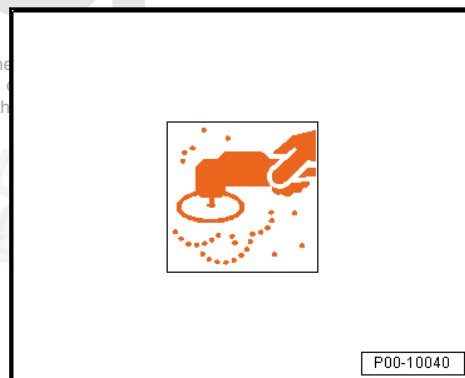
**Preparation of surfaces - OK factory or old paint.**

- Thoroughly clean factory or old paint using Silicone Remover, Diluted, LSW 019 000 A5, or beforehand with Silicone Remover, Long LVM 020 100 A5 if very dirty.



- Perform dry sanding using a rotary sander, with P1000 to P1500 grit dry sanding paper and dust extraction.

- Sand spokes, corners and edges by hand with an Ultra-Fine/P3000 sanding pad.

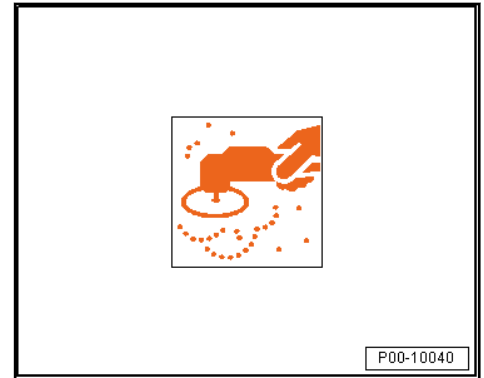


- Before reworking, carefully clean the sanded base surfaces of dust, sanding residue and other dirt with Silicone Remover, Diluted, LSW 019 000 A5. If very dirty, clean beforehand using Silicone Remover, Long LVM 020 100 A5.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks.



**Preparation of surfaces - two-part wet-on-wet fillers**

- Perform dry sanding using a rotary sander, with P1500 dry sanding paper and dust extraction.

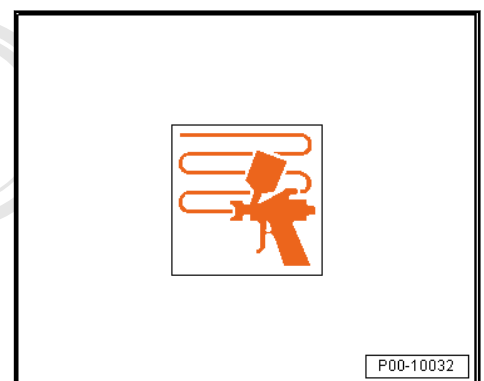


- Or wet-sand with P800 to 1000 grit wet sandpaper.



- Apply two-part HS clear coat on sanded filler.

Depending on the size of the repair area or if there are many repair areas, it is recommended to apply two-part HS clear coat to the entire rim.

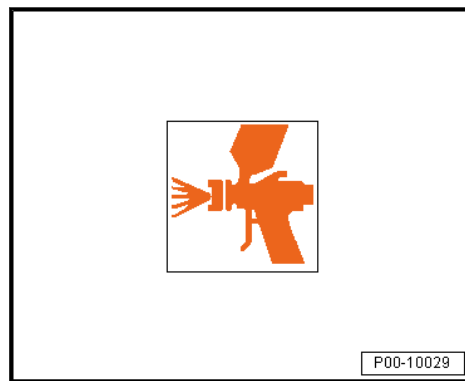


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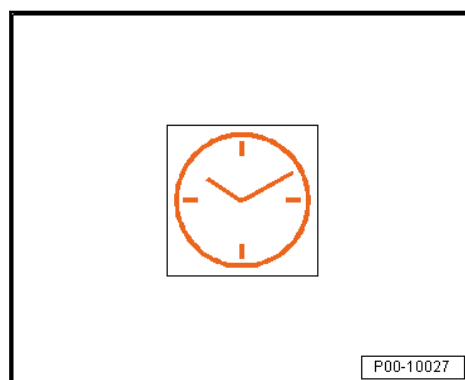
erWin



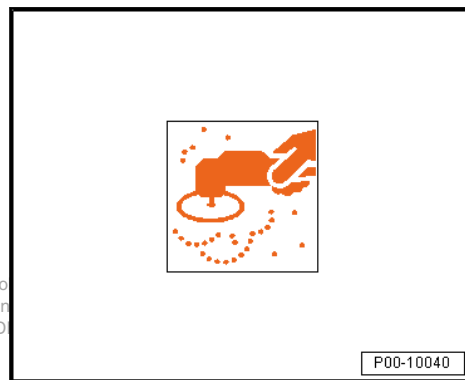
- Apply a preliminary spray application, approximately 20 µm.



- Keep in mind forced drying at +60 °C (140 °F) object temperature for 20 to 25 minutes.



- Perform dry sanding using a rotary sander, with P1000 to P1500 grit dry sanding paper and dust extraction.
- Sand spokes, corners and edges by hand with an Ultra-Fine/P3000 sanding pad.



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- Before reworking, carefully clean the sanded base surfaces of dust, sanding residue and other dirt with Silicone Remover, Diluted, LSW 019 000 A5.



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#### Base paint - additive for AquaPremium

Application type	Compliant	HVLP
Processing viscosity	Mixing viscosity	
Adding additive at +20 °C (68 °F) material temperature	50% additive for AquaPremium LVM 035 301 A2	
Spray nozzle	1.2 - 1.3 mm	1.2 - 1.3 mm
Spraying pressure	2.0 bar (29.01 psi)	-
Atomizing pressure	-	0.7 bar (10.15 psi)
Spray applications	1.5 spray applications: One normal, preliminary spray application followed by a light spray application while standing back from the object.	
Flash-off time before clear coat application	Ventilate at +20 °C (68 °F) room temperature until matted	
The best results are achieved when using a 1.3 mm HVLP spray gun.		
Additive for AquaPremium LVM 035 301 should be added immediately before applying the Water-Based Metallic Base Paint, Silver LWG 056 1H7 A1.		
The best result is achieved when the mixture is used within a working day.		

#### Ways of reducing the flash-off time for rims

The formation of the matte finish on the painted surface can be accelerated by blowing with a blower nozzle or forced drying (OR or oven drying).

Blowing with a spray gun is also possible after waiting at least five minutes.

Condition

- The drying time is at least five minutes.

The evaporating and drying times specified here depend on the temperature, humidity, air sink speed in the spray booth and the number of spray applications.

Condition

- Always wait until the painted surface is completely matte.

Can be painted over with two-part HS clear coat, elasticized.

Refer to Refer to ⇒ ["4.9 Clear Coats", page 204](#) .

For touch-up paint using Metallic Water-Based Base Paint, Silver LWG 056 1H7 A1:

#### Condition

- Apply one to two standard spray applications of the Touch-Up Additive For AquaPremium LVM 035 100 A3 to the run-out area.

---

### Products, Processing

- ◆ The spray devices should be suitable for use with water-soluble products. See manufacturer's information.
- ◆ Additional information can be found in the system reference sheet. Refer to ⇒ General processing instructions for water-soluble products .
- ◆ The mixing paint in this top coat series can only be used within the color tone formulas. When processing individual mixing paints on their own, major deviations from the information given in the reference sheets are possible.

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### Work Equipment, Cleaning

- Rinse before and after using with Aquaplast Purified Water LVW 010 000 A5.
- Rinse with Nitro Thinner LVE 856 000 A3.

Refer to the system reference sheet ⇒ Work Equipment and Spray Guns, Cleaning , for specific information.



### Disposal

- ◆ Collect liquid waste from water-soluble products and separate from liquid waste from conventional products.
- ◆ When mixing materials, disposal may no longer be possible. In any case this will make disposal more difficult and thus costly.
- ◆ For specific information, refer to ⇒ System Reference Sheet No. 9.15 .

## 4.8 Ready-Mix Top Coats

⇒ [“4.8.1 Ready-Mix Top Coats”, page 203](#)

### 4.8.1 Ready-Mix Top Coats

Available Aquaplus ready-mix colors

Code	Color	Original paint - ready-mix Aquaplus	
Ready-mix solid	L041	Black	LUW 038 041 A2 U00
	LB9A	Candy white	LUW 038 B9A A2 000
Ready-mix metallic	LA7W	Reflex silver, metallic	LMW 039 A7 W A2 000
	LA7W	Reflex silver, metallic/H	LMW 039 A7 W A2 H00
Ready-mix pearl effect	LC9X	Deep black, pearl effect	LPW 040 C9X A2 000

Original paint - ready-mix AquaPremium			
Rim	1H7	silver	LWG 056 1H7 A1
Ready-mix solid	LC9A	Pure white	LWG 055 C9A A2 U00
	LB9A	Candy white/RH	LWG 055 B9A A2 RH0
Ready-mix metallic	LY9T	Mythos black, metallic	LWG 056 Y9T A2 U00
	LA7W	Reflex silver, metallic	LWG 056 A7 W A2 U00
	LA7W	Reflex silver, metallic/GGB	LWG 056 A7 W A2 GGB
Ready-mix pearl effect	LC9X	Deep black pearl effect/BL	LWG 057 C9X A2 BL0
	LZ9Y	Phantom black, pearl/D	LWG 057 Z9Y A2 D00

Original paint - clear coat			
Clear Coat	K 01	Two-Part HS Vario Clear Coat	L2K 769 K01 A5
	K 05	Two-Part HS Brilliant Plus Clear Coat	LZK 769 K05 A5
	K 06	Two-Part HS Performance Clear Coat	LZK 769 K06 A5
	K 07	Two-Part HS Optimum Plus Clear Coat	LZK 769 K07 A5
	500 er	Two-Part HS Clear Coat	L2K 769 500 A5
	matte	Two-part MS clear coat, matte	L2K 769 020 A2

Original paint - Two-part HS Ready-mix			
	R902	Gray-white red brighter	L2K 073 902 A2
	L132	Genista yellow	L2K 073 132 A2
	L7DL	Gray, matte	LZK 073 7DL A2
	L3FZ	Black, matte	L2K 073 3FZ A2

## 4.9 Clear Coats

- ⇒ ["4.9.1 Two-Part HS Clear Coat", page 204](#)
- ⇒ ["4.9.2 Two-part MS clear coat, matte", page 211](#)
- ⇒ ["4.9.3 Two-Component Clear Coat, Matte and Satin-Finish", page 217](#)
- ⇒ ["4.9.4 Two-Part HS Performance Clear Coat", page 223](#)
- ⇒ ["4.9.5 Two-Part HS Optimum Plus Clear Coat", page 229](#)
- ⇒ ["4.9.6 Two-Component HS Race Clear Coat", page 234](#)
- ⇒ ["4.9.7 Two-Part Blender", page 241](#)
- ⇒ ["4.9.8 Race Blender", page 245](#)

### 4.9.1 Two-Part HS Clear Coat

#### Storage

Guaranteed shelf life of 48 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

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P00-10050

#### Properties

Two-Part HS Clear Coat L2K 769 500 A5 is a VOC-compliant, high-solid clear coat.

- ◆ Easy to process
- ◆ Variable uses for two-part HS and two-part VHS hardeners
- ◆ Good spreading properties
- ◆ Brilliant surface finish

## Suitable base surfaces

- ◆ Water-based base paints, refer to the reference sheets

## Suitable pre-treatment materials

- ◆ Dependent on the object and base surface, in accordance with structure recommendations

## VOC value

Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.

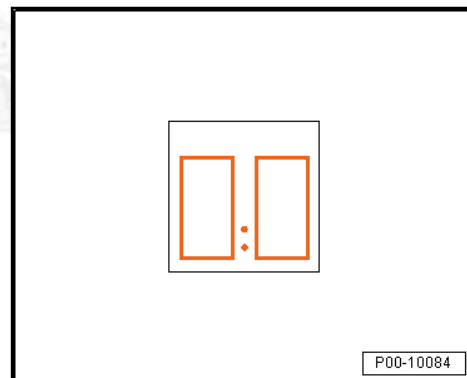
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## Processing with two-part HS hardeners

### Mixing ratio

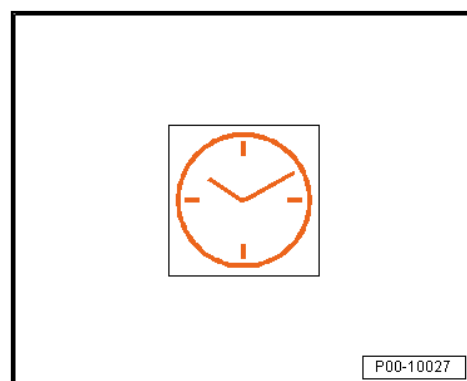
Mixing ratio 2:1 by volume with:

- ◆ Two-Part HS Hardener LHA 09 041 A3
- ◆ Two-Part HS Hardener, Short LHA 021 004 A3
- ◆ Two-Part HS Hardener, Extra Short LHA 009 046 A2
- ◆ Two-Part HS Hardener, Long LHA 009 047 A3
- ◆ Two-Part HS Hardener, Extra Long LHA 009 048 A3
- ◆ See Refer to ➤ [“4.10.2 Two-Part HS Hardener”, page 248](#) .



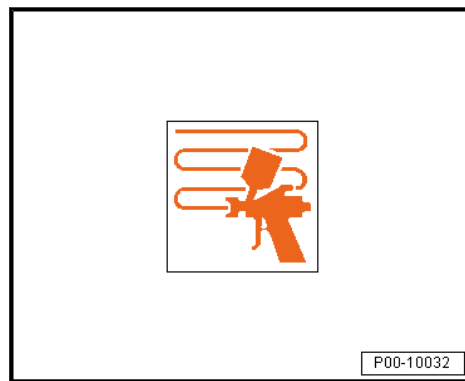
### Curing Time

Ready for spraying in 90 minutes at +20 °C (68 °F).



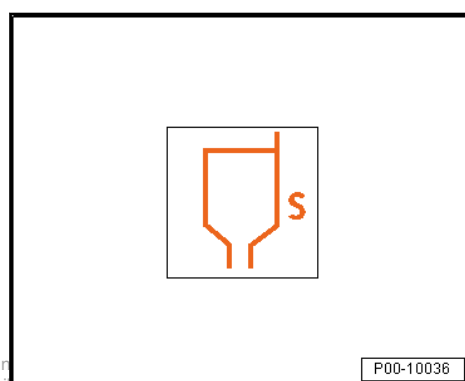
## Spray application

Perform the application type coat.



## Processing viscosity

Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for "Compliant" and "HVLP".

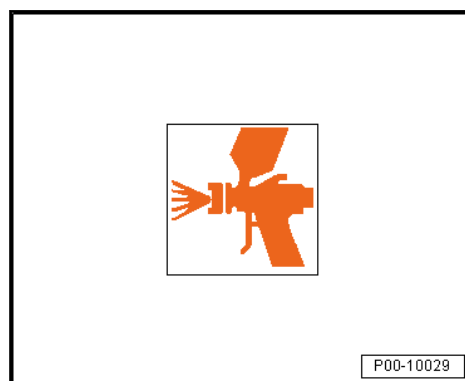


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## Washer nozzle and spray pressure

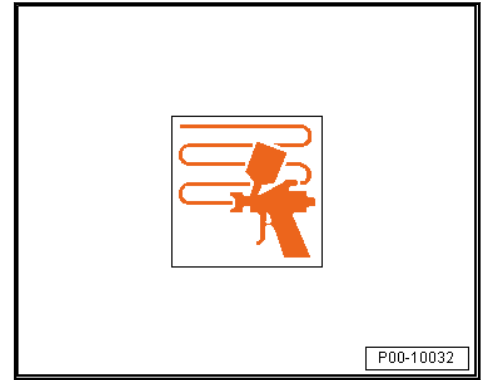
Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
HVLP	1.3 - 1.5		0.7 bar (10.15 psi)
Compliant	1.3 - 1.4	2 - 2.5 bar (29.01 - 36.26 psi)	



### Dry layer thickness

The recommended dry layer thickness is between 50 and 60 µm.

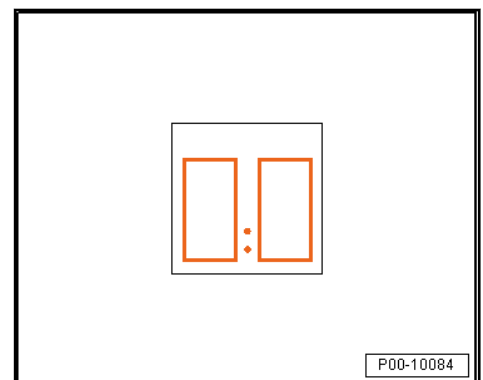


### Processing with two-part VHS hardeners

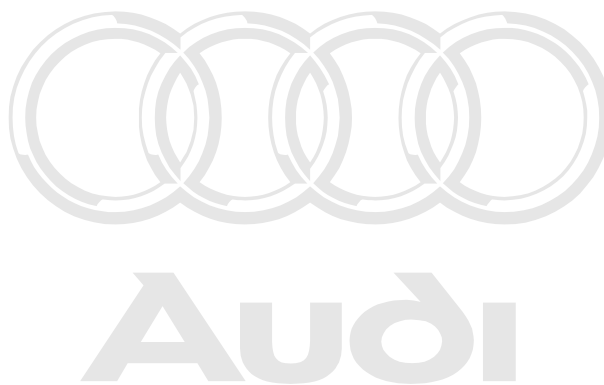
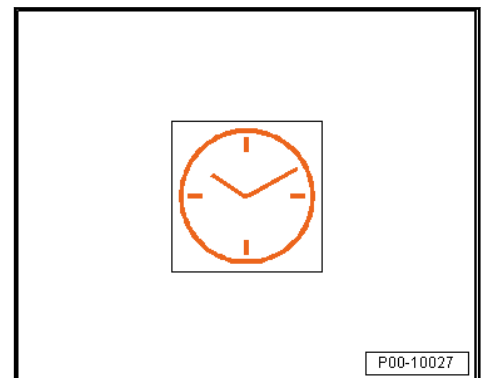
#### Mixing ratio

Mixing ratio 3:1 by volume with:

- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5
- ◆ Two-Part VHS Hardener, Short LHA 009 050 A2
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2
- ◆ See Refer to ⇒ [“4.10.3 Two-Part VHS Hardener”, page 251](#) .



Ready to spray in 60 to 90 minutes at +20 °C (68 °F), depending on the hardener used.



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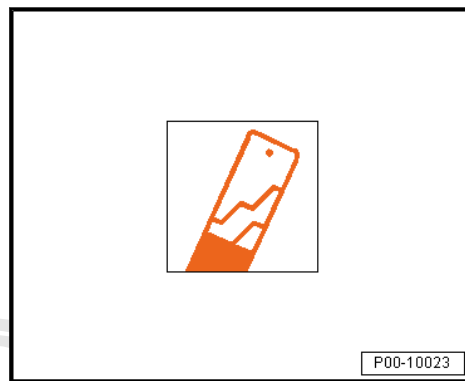
### Thinner

Adding thinner at +20 °C (68 °F) material temperature:

Two-Part Thinner, Special LVM 009 200 A2/LVM 009 200 A5

Condition

- Do not apply on slanted surfaces.



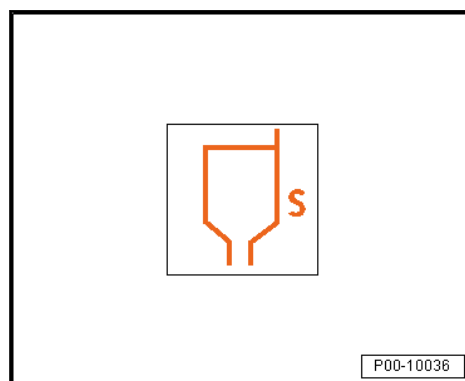
### Spray application

Perform the application type coat.



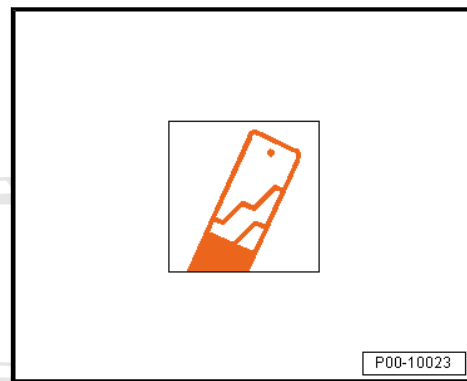
### Processing viscosity

Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for "Compliant" and "HVLP".



## Thinner

Add 12.5 to 15% Two-Part Thinner, Special LVM 009 200 A2/LVM 009 200 A5.



## Washer nozzle and spray pressure

Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
HVLP	1.3 - 1.5		0.7 bar (10.15 psi)
Compliant	1.3 - 1.4	2 - 2.5 bar (29.01 - 36.26 psi)	



## Dry layer thickness

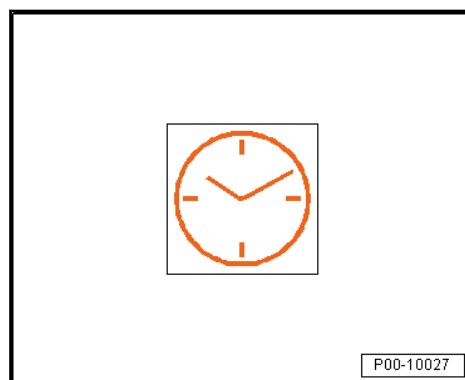
1.5 spray applications are required to get the recommended dry layer thickness of 50 to 60 µm.



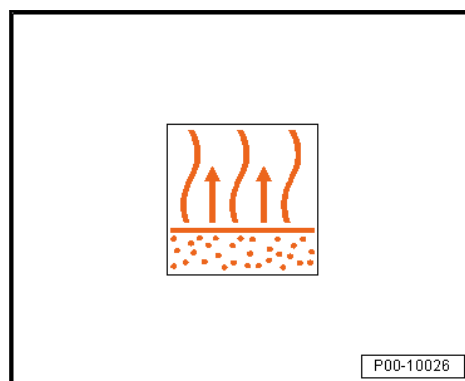
## Drying

Air dry at +20 °C (68 °F) room temperature:

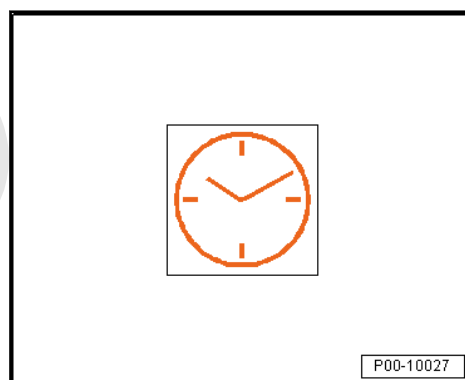
- ◆ Dust dry after 40 to 50 minutes
- ◆ Ready for assembly after four to six hours
- ◆ Dry: overnight



Flash-off time with forced drying is a minimum of 5 to 10 minutes.



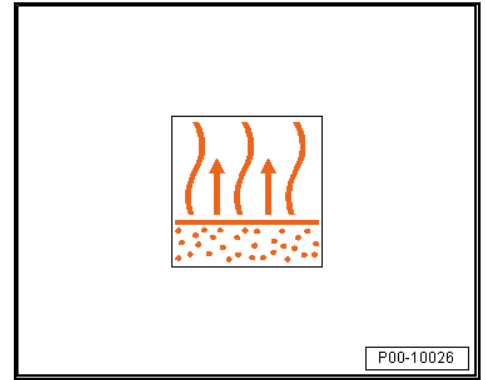
Forced dry at +60 °C (140 °F) object temperature for 30 to 40 minutes



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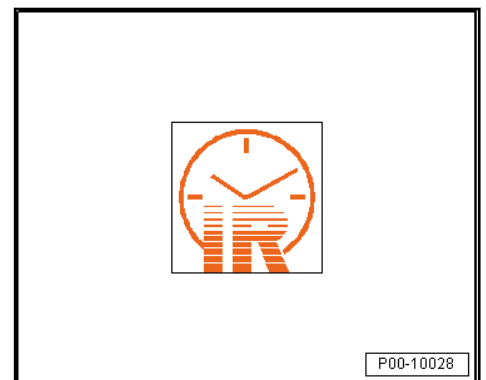


Final flash-off time for IR drying is a minimum of 5 minutes.



IR drying with short-wave radiator for 10 to 15 minutes.

IR drying with medium-wave radiator for 15 to 20 minutes.



## Elastification

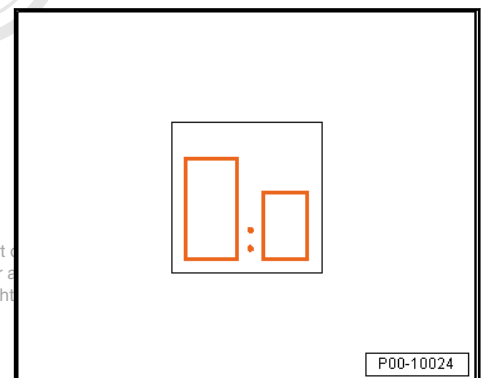
Elastification for rigid and semi-rigid plastics.

Mixture ratio with two-part HS hardeners, 2:1.

Mixture ratio with two-part VHS hardeners, 3:1 with 15% thinner.

- First, mix the base material with 15% Two-Part Elastic Additive ALZ 011 001.

Drying time will prolong.



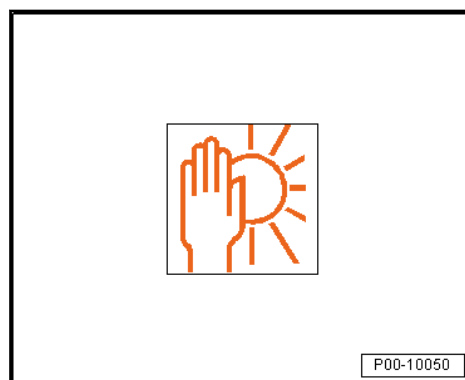
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## 4.9.2 Two-part MS clear coat, matte

## Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Properties

Two-Part MS Clear Coat, Matte L2K 769 020 A2 is a clear coat from the two-part acrylic system.

- ◆ High elasticity
- ◆ Matted adjustment
- ◆ Can be cured with HS and VHS products
- ◆ Gloss grade adjustments with two-part HS clear coats are possible.
- ◆ Ideally suited for painting plastic
- ◆ Sanding and polishing of the sand is not possible, because the surface will be glossy from repairs.
- ◆ No spot repair
- ◆ Chemical resistance is limited compared to production paint.
- ◆ Do not use paint cleaner, sanding/polishing products, or gloss-preserving wax for paint care.
- ◆ Do not allow resinous, fatty or oily substances to come into contact with the paint.
- ◆ Only use brushless car wash.
- ◆ Only washing programs without hot wash and wax are suitable for the surface.
- ◆ Application is limited to smaller areas on passenger vehicle attachments

## Suitable base surfaces

- ◆ Water-based base paints, refer to the reference sheets

## VOC value

Flashpoint	above +23 °C (73.4 °F)
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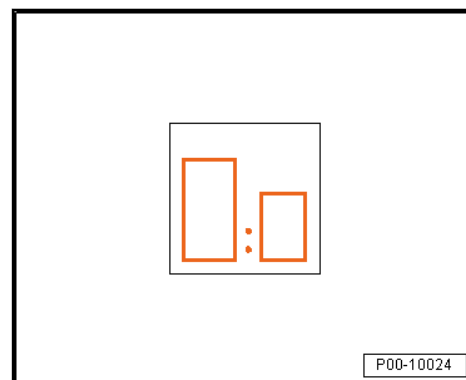
VOC value: 2004/42/IIB (e)  
(840) 580

The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 580 g (20.5 oz)/l.

## Mixing ratio

Mixing ratio 3:1 by volume with:

- ◆ Two-Part HS Hardener LHA 009 041 A3
- ◆ Two-Part HS Hardener, Long LHA 009 047 A3
- ◆ Two-Part HS Hardener, Extra Long LHA 009 048 A3

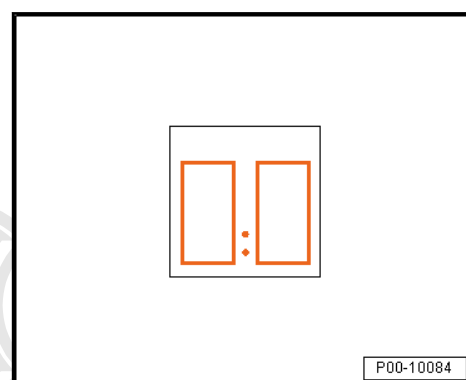


Mixing ratio 5:1 by volume with:

- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2

## Tip

Using varying HS/VHS hardeners and thinners results in different gloss grades.



## Processing

- The clear coat should be carefully agitated before removing the material.

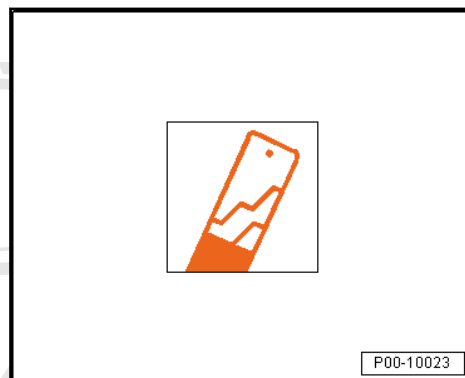
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is not liability G.



## Thinner



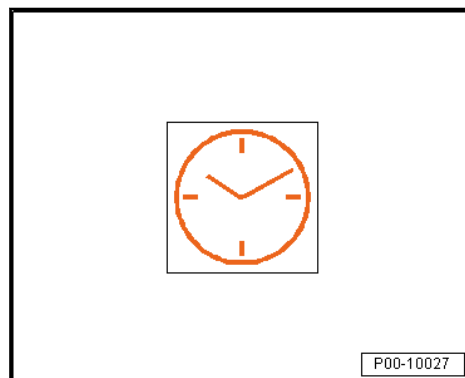
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### Dilutable with:

- ◆ Two-Part Thinner LVE 009 001 A5
- ◆ Two-Part Thinner, Long LVM 009 300 A2
- ◆ Two-Part Thinner, Special LVM 009 200 A2/LVM 009 200 A5

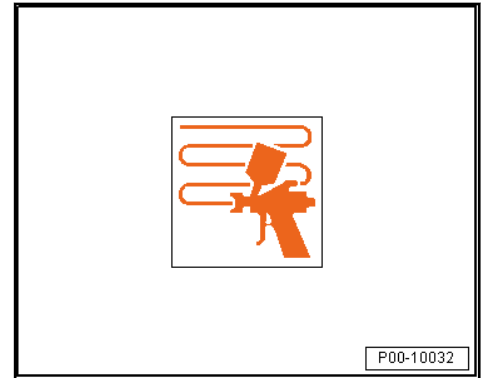
## Curing Time

Ready to spray in four hours at +20 °C (68 °F).



### Spray application

- Perform the application type coat.

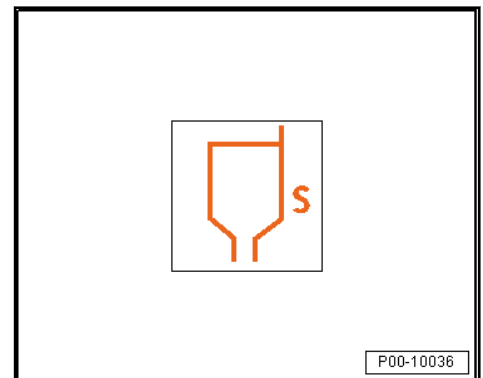


### Processing viscosity

Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for "Compliant" and "HVLP".

DIN 4 mm: 14 to 16 seconds

ISO 4 mm: 28 to 33 seconds



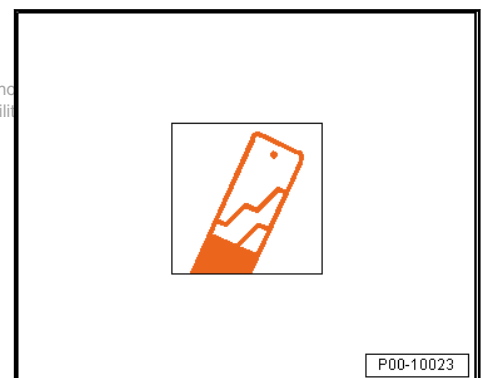
### Thinner

Adding thinner at +20 °C (68 °F) material temperature of 25% HS-Hardener, mixture ratio 3:1.

Adding thinner at +20 °C (68 °F) material temperature of 30% HS-Hardener, mixture ratio 5:1.

### Condition

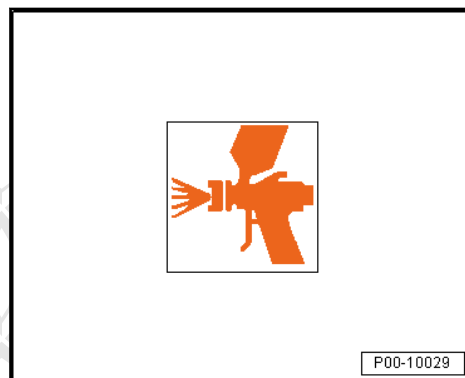
- Use a measuring stick to mix when pouring in the thinner.



## Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)
Compliant	1.3 - 1.4	2 - 2.5 bar (29.01 - 36.26 psi)	

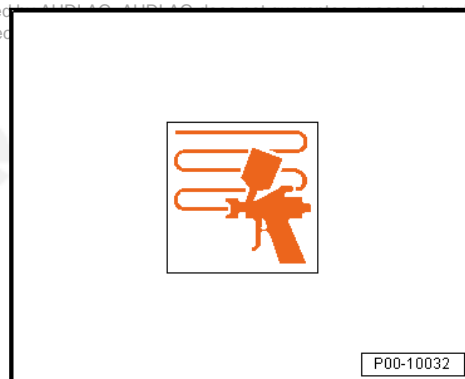


## Application

Using varying application types results in different gloss grades.

- Carry out one complete spray application.
- Ventilate for 15 to 20 minutes and then finish painting.

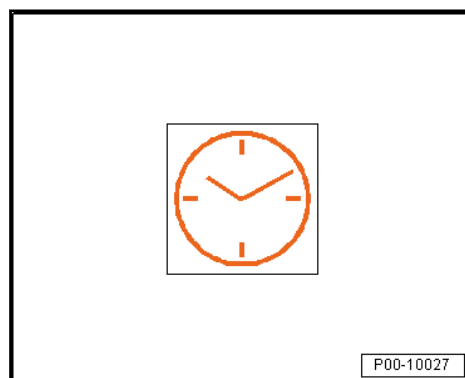
1.5 spray applications are required to get the specified dry layer thickness of 50 to 60 µm.



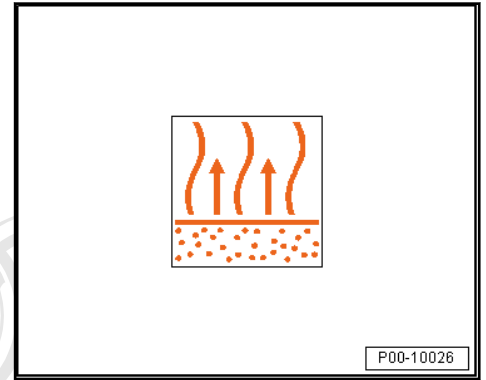
## Drying

Air dry at +20 °C (68 °F) room temperature:

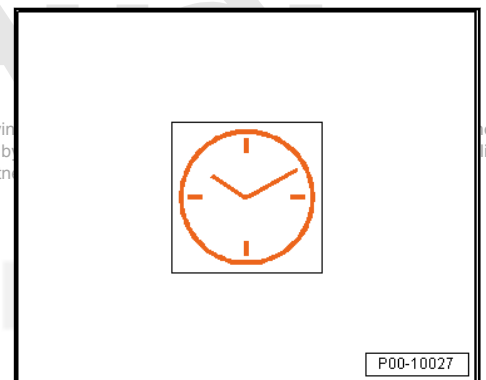
- ◆ Dust dry after 2 to 2.5 hours.
- ◆ Ready for assembly after five to six hours
- ◆ Dry: overnight



Final flash-off time with forced drying is a minimum of 15 to 20 minutes.



Forced dry at +60 °C (140 °F) object temperature for 40 to 45 minutes



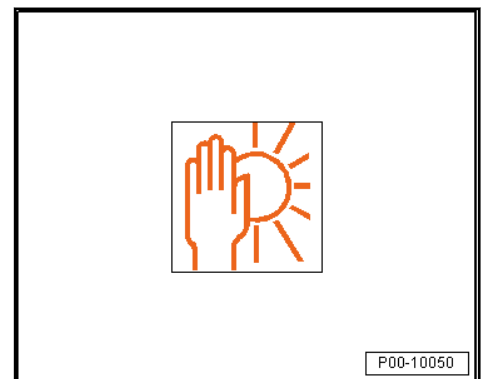
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### 4.9.3 Two-Component Clear Coat, Matte and Satin-Finish

#### Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



#### Properties

The new two-component matte clear coats are two clear coats that can be mixed with each other.

- ◆ Two-Part Clear Coat, Satin Finish LZK 630 103 A2
- ◆ Two-Component Clear Coat, Matte LZK 630 165 A2 2K
- ◆ They can be combined to create the largest range of gloss grades to achieve OEM factory paint structures of 5 GE\* (matte) – 65 GE\* (satin finish) (\*60° angle).

- ◆ New matte pigment technology with significantly smaller pigment size = 4 µm (current/old= 14 µm).
  - ◆ Improved color and clarity of effect pigmentation.
  - ◆ Easy to use and good reproducibility between the coats.
  - ◆ Simple, robust and user-friendly application process.
  - ◆ Flexible and easy to use in any climatic condition and for any type of repair, whether individual parts, several components, or full surface painting.
  - ◆ Achieves optimal adaptation
  - ◆ Defined drying and flash-off times result in a homogeneous and uniform appearance without visible spottiness, even with very low gloss grades.
  - ◆ Greatly improved haptics, very smooth surface characteristics when dry.
  - ◆ Energy savings – thanks to significantly shortened drying times compared to the existing solution.
  - ◆ User-friendly and quick color match for matte colors with the WizardWeb advanced digital color management software.
  - ◆ Improved colorization functions – with the introduction of two-component clear coat satin-finish/matte, it is also possible to search for colors by matte colors using the Color Finder.
  - ◆ Easy to stir by hand.
  - ◆ No special additive necessary for plastic parts.
- 

#### **Suitable base surfaces**

- ◆ A clean vehicle is essential, since a color measurement needs to be performed. It should ideally be performed near the location of the damage.
  - ◆ Is undamaged and free of scratches.
  - ◆ Is free of surface contamination.
  - ◆ Is as close to the location to be repaired as possible.
  - ◆ After you decided on a location, remove contaminations using **Silicone Remover Long LVM 020 100** and/or **Silicone Remover LSW 019 000**.  
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  - ◆ Then use a cleaning product that was developed for matte surfaces.
  - ◆ In the last step, prepare the surface by performing a final cleaning using the **Silicone Remover LSW 019 000**.
- 

#### **Processing**

Mix the selected gloss grade (LZK 630 165/103) with the corresponding hardener as is recommended in the technical application information and in the WizardWeb informational text.

- ◆ In order to allow for a simpler color search when searching for matte colors, it is now also possible to measure colors on matte surfaces.

- ◆ The introduction of the advanced multiple correction in WizardWeb has changed the screen for the color search using the Color Finder.
- ◆ A gloss/matte button was added, which allows you to specifically filter the color search for matte colors.
- ◆ The gloss grade range is divided into six matte level (ML) groups.
- ◆ The suggested matte level (ML) is displayed in the informational text of the individual color formula.
- ◆ The standard mixture ratio for each ML is displayed in the matrix table of the technical application information and the "Ready-to-spray mixture of other products" function of WizardWeb.
- ◆ Use the WizardWeb "Ready-to-spray mixture of other products" function to find all mixtures according to the matte level group and the required gloss grade.
- ◆ Since the base surface (water-based paint or sanded clear coat) influences the final gloss grade, please refer to the matrix of the respective base surface or the base paint quality you have selected in the WizardWeb.
- ◆ When the mixture ratio is given, then the Two-Part Clear Coat, Matte LZK 630 165 will always be mentioned first in the mixture.
- ◆ Mix the selected gloss grade (LZK 630 165/103) with the corresponding hardener as is recommended in the technical application information and in the WizardWeb informational text.
- ◆ When applying two-component clear coat satin finish/matte on AquaPremium water-based paint, the whole part must either be applied with AquaPremium water-based paint (color) or touch-up additive for AquaPremium. This process applies to all AquaPremium colors (solid and effect).
- ◆ Touch-up additive for AquaPremium must be used for all blending work.
- ◆ If AquaPremium water-based paint is not applied to the entire base surface, this can lead to visible differences in the gloss grade between the applied location and the old paint.
- ◆ In order to choose the best-suited matte level group, please use the "AquaPremium" matrix or select the type/AquaPremium in the WizardWeb product mix.
- ◆ When repairing a vehicle, it is recommended to determine and confirm the correct gloss grade by means of spray-on tests.
- ◆ When in doubt, also create spray-on tests for adjacent gloss grades, which can be found in WizardWeb. Example: 45:55 (standard mixture). Also take 50:50 and 40:60 into consideration.
- ◆ To ensure the quality of spray-on tests, make sure that the application matches the application that will be used on the vehicle.
- ◆ For this reason, attaching the spray-on tests to a sheet metal panel or an old vehicle part during application is recommended.
- ◆ Compare the spray-on tests at the location where you previously performed the measurement.
- ◆ This should be done under daylight conditions if possible.

Matrix for use with Aquaplus or AquaPremium water-based paint:

Gloss degree at 60°	ML1 5-10 GE	ML2 11-15 GE	ML3 16-25 GE	ML4 26-35 GE	ML5 36-50 GE	ML6 51-65 GE
LZK 630 165	80*	65*	45*	40*	20*	0*
LZK 630 103	20*	35*	55*	60*	80*	100*
Optimal mixture ratio within the respective matte level.	100:0	70:30	50:50	45:55	25:75	10:90
	95:5	60:40	40:60	35:65	15:85	5:95
90:10	90:10	55:45		30:70		
	85:15					
	75:25					

\*Default setting of the respective matte level.

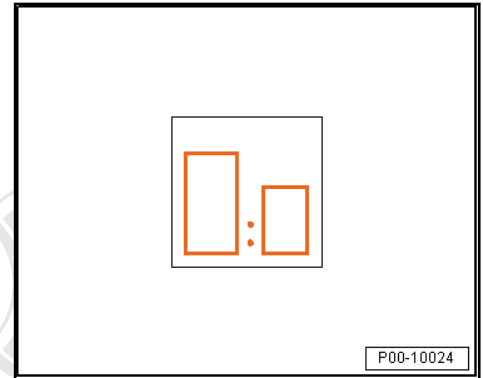
- ◆ Values by weight.
- ◆ It is strongly recommended to always mix using a scale to achieve the greatest level of accuracy of the "ready-to-spray mixture."

- Mix well by hand before adding the hardener and thinner.



### Mixing ratio

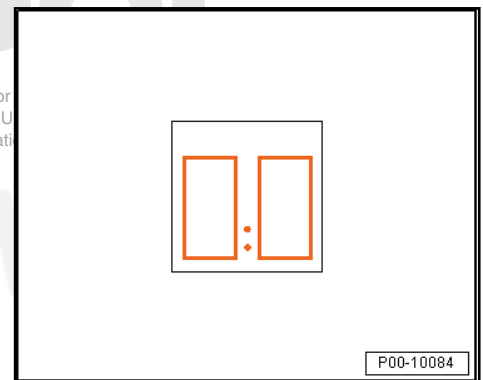
- ◆ Mixture of Two-Part Clear Coat , Matte LZX 630 165 with Two-Part Clear Coat, Satin Finish LZX 769 103 according to the desired matte level (ML1-6).



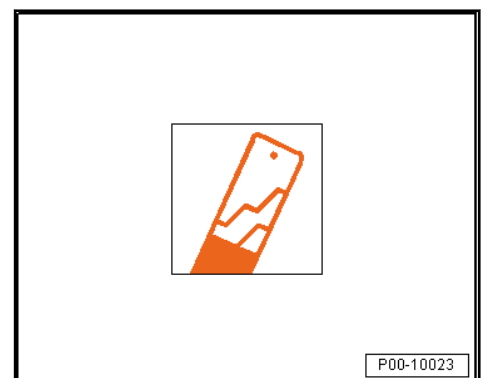
### Addition of hardener by weight:

- ◆ 100 g (3.5 oz) = LVM 769 810/LZX 630 103
- ◆ 26.6 g (0.9 oz) = LHA/LVM 009 051 or LHA 009 053

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### Thinner



### Addition of thinner by weight:

- ◆ 9.1 g (0.3 oz) = LVM 009 300 2K thinner, long

- Stir well by hand before application.

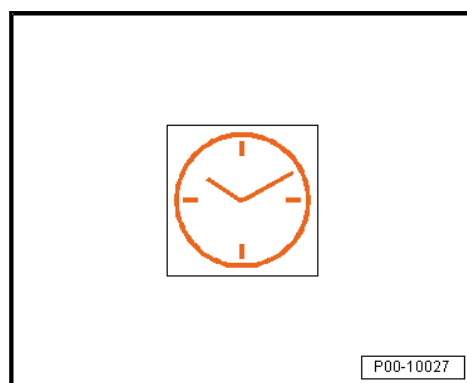
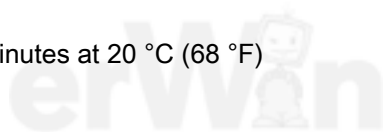


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### Curing Time

Pot life: 75 to 90 minutes at 20 °C (68 °F)



### Spray application

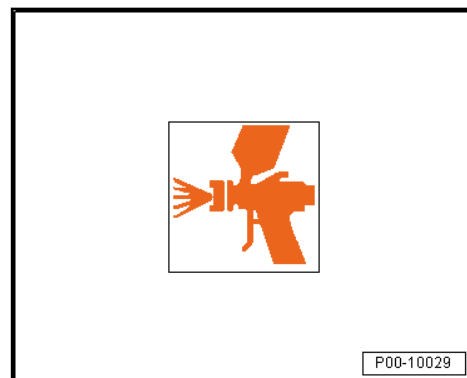
- Application type:
  - ◆ Apply two normal even coats.
  - ◆ 15 minutes of intermediate drying time



### Washer nozzle and spray pressure

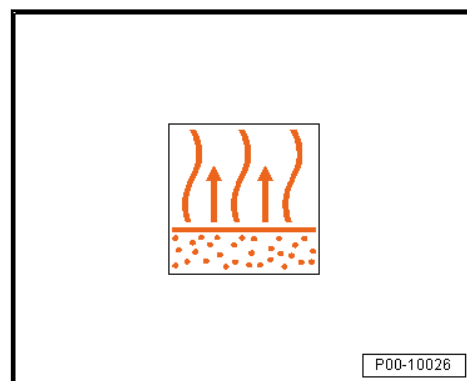
- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)
Compliant	1.3 - 1.4	1.8 - 2.0 bar (26.11 - 29.01 psi)	



### Drying

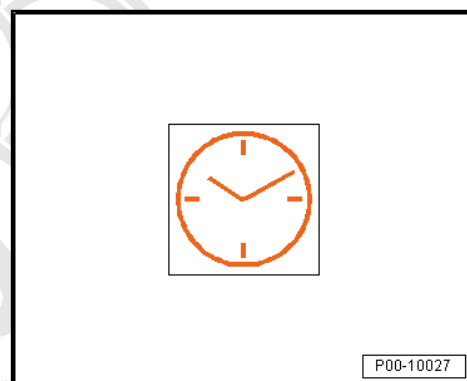
Final flash-off time with forced drying is a minimum of 15 minutes.



25 to 35 minutes at 60 - 65°C (149 °F) object temperature.

A sufficient warm-up phase must be taken into consideration.  
Air drying overnight is possible, but it can lead to differences in the gloss appearance.

Forced drying is the preferred method of drying and leads to the most stable and reliable reproducibility.



## 4.9.4 Two-Part HS Performance Clear Coat

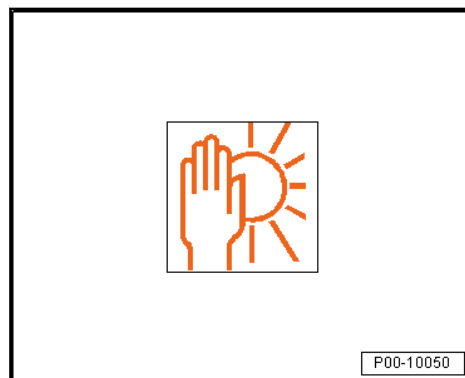
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## Storage

Guaranteed shelf life is:

- ◆ 48 months from production date for Two-Part HS Performance Clear Coat LZK 769 K05 A5.
- ◆ 24 months from production date for Clear Coat Additive LVM 007 000 A2.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Properties

Two-Part HS Performance Clear Coat LZK 769 K06 A5 is a high-gloss, VOC-compliant high solid clear coat.

- ◆ Can be used in a number of ways for all areas of repair
- ◆ Flexible application in 1.5 spray applications (preferred), or possible in two spray applications
- ◆ Good stability
- ◆ Good gloss and depth.
- ◆ Dries quickly

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## Suitable base surfaces

- ◆ Water-based base paints, refer to the reference sheets

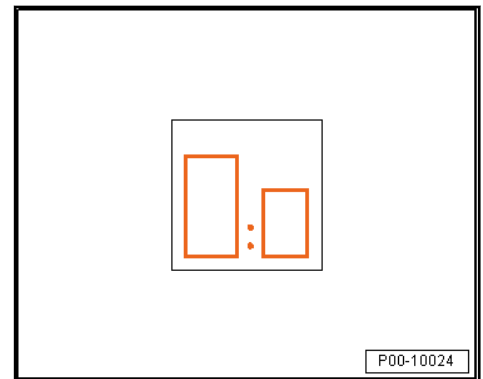
## VOC value

Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.

### Mixing ratio

Mixing ratio 3:1 by volume with:

- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5
- ◆ Two-Part VHS Hardener, Short LHA 009 050 A2
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2
- ◆ The choice of hardener depends on the temperature and the size of the surface.
- ◆ See Refer to ➤ [“4.10.3 Two-Part VHS Hardener”, page 251](#) .

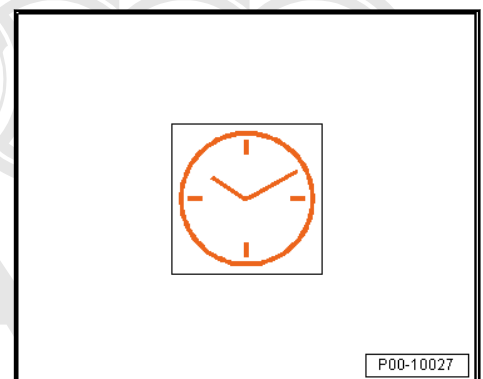


### Curing Time

Ready for spraying in 45 to 60 minutes at +20 °C (68 °F).

Dilutable with:

- ◆ Clear Coat Additive LVM 007 000 A2
- ◆ HS Spot Thinner LVM 006 000 A2
- ◆ See Refer to ➤ [“4.11.3 HS Spot Thinner”, page 258](#) .



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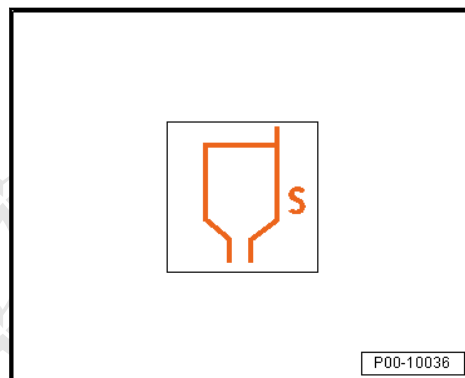
### Spray application

- Perform the application type coat.



## Processing viscosity

Processing viscosity 4 mm at +20 °C (68 °F), DIN 53211.



## Thinner

### Tip

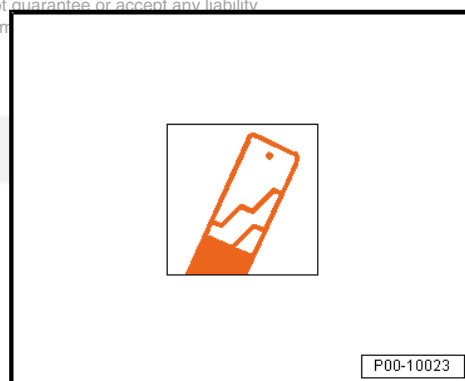
When using as a clear coat for minimal damage repairs, 5% Clear Coat Additive LVM 007 000 A2 can be replaced with 5% HS Spot Thinner LVM 006 000 A2.

### Tip

The described mixture for the clever repair procedure should not be used on reclined surfaces.

Adding 5% Clear Coat Additive LVM 007 000 A2 at +20 °C (68 °F) material temperature

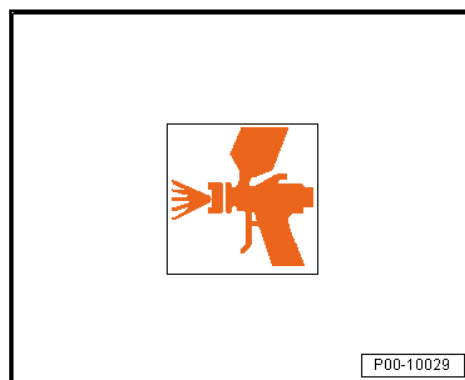
- ◆ Use a measuring stick to mix when pouring in the thinner.



## Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)
Compliant	1.3 - 1.4	2 - 2.5 bar (29.01 - 36.26 psi)	



## Spray application

1.5 spray applications:

The first half-application creates a thin almost cohesive film.

Directly after, apply one full spray application on the entire surface.

- Apply 1.5 spray coats.

Two spray applications:

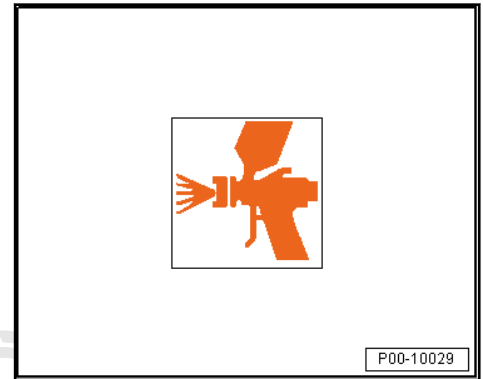
The first half-application creates a thin almost cohesive film.

Intermediate flash-off time is 5 to 10 minutes

Directly after, apply one full spray application on the entire surface.

The recommended dry layer thickness is between 50 and 70 µm.

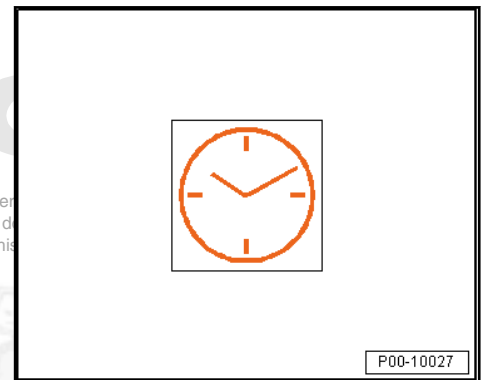
- Apply two coats.



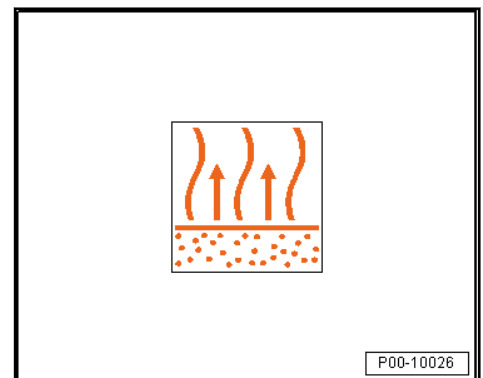
## Drying

Air drying at between +18 and 22 °C (64.4 and 71.6 °F) room temperature: dry overnight.

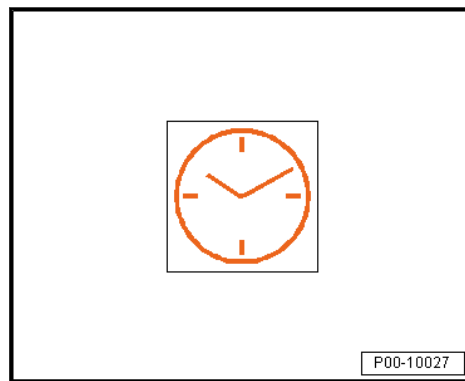
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Final flash-off time with forced drying is a minimum of 5 to 10 minutes.



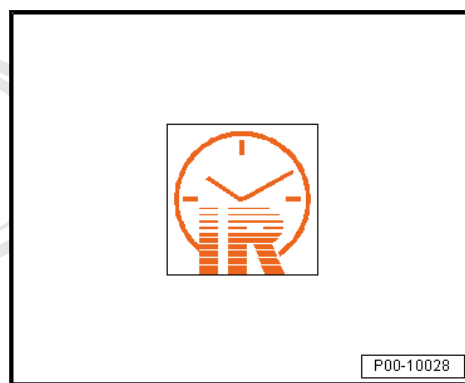
Forced drying is between +60 and 65 °C (140 and 149 °F) for 25 to 35 minutes.



Final flash-off time for IR drying is a minimum of 5 to 10 minutes.



IR drying with short-wave radiator for 10 to 15 minutes.



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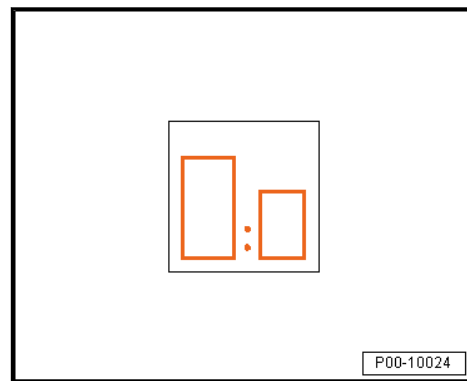
## Elastification

Elastification for rigid and semi-rigid plastics.

Mixture ratio 3:1 by volume.

- First, mix the base material with 15% Two-Part Elastic Additive ALZ 011 001.
- Create mixture with two-part VHS hardeners with 5% Clear Coat Additive LVM 007 000 A2.

Drying time will prolong.

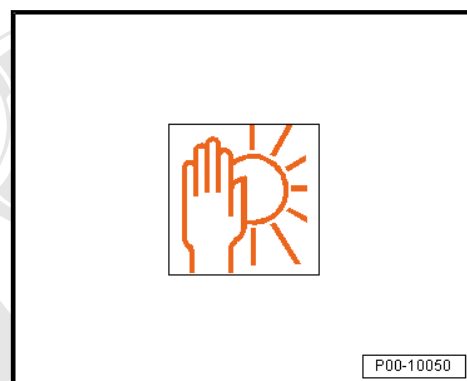


## 4.9.5 Two-Part HS Optimum Plus Clear Coat

### Storage

Guaranteed shelf life of 48 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



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### Properties

Two-Part HS Optimum Plus Clear Coat LZK 769 K07 A5 is a high-quality, VOC-compliant high solid clear coat.

Optimal application even under unfavorable booth conditions, for example low drying temperature.

This product is classified according to the regulation (EC) No. 1272/2008 (CLP).

- ◆ Flexible and efficient application possible
- ◆ Very quick drying
- ◆ Quick and easy to polish
- ◆ It is possible to use HS Spot Thinner LVM 006 000 A2

### Suitable base surfaces

- ◆ Water-based base paints, refer to the reference sheets
- ◆ Water-Based Mixed Paint, Solid LWM 075, Water-Based Mixed Paint, Metallic LVM 076
- ◆ Water-Based Mixed Paint, Solid LUW/LWG 038, Water-Based Mixed Paint, Metallic LMW/LWG 039
- ◆ AquaPlus System, AquaPremium System, AquaPremium System: Metallic-Water-Based Base Paint, Silver



## VOC value

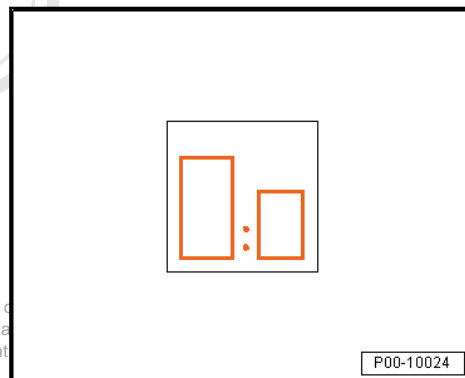
Flashpoint	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (d) (420) 420	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.

## Mixing ratio

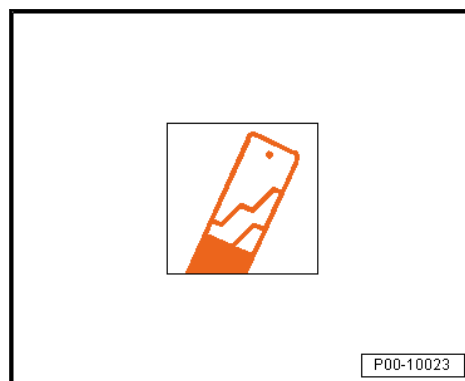
Mixing ratio 3:1 by volume with:

- ◆ Two-Part VHS Hardener, Short LHA 009 050 A2
- ◆ Two-Part VHS Hardener LHA 009 051 A2
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2
- ◆ The choice of hardener depends on the temperature and the size of the surface. Refer to Refer to ⇒ [“4.10.3 Two-Part VHS Hardener”, page 251](#)

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## Thinner

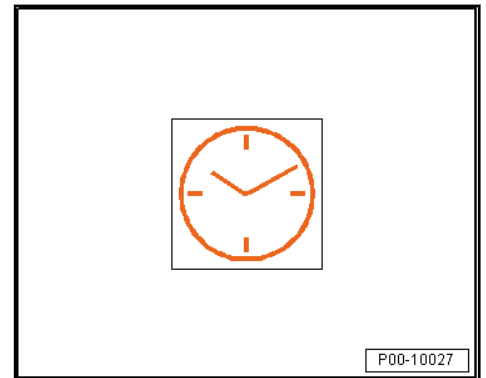


Dilutable with:

- ◆ Two-Part Thinner, Special LVM 009 200 A2
- ◆ Two-Part Thinner, Long LVM 009 300 A2/A5
- ◆ HS Spot Thinner LVM 006 000 A2
- ◆ See Refer to ⇒ [“4.11.3 HS Spot Thinner”, page 258](#) .

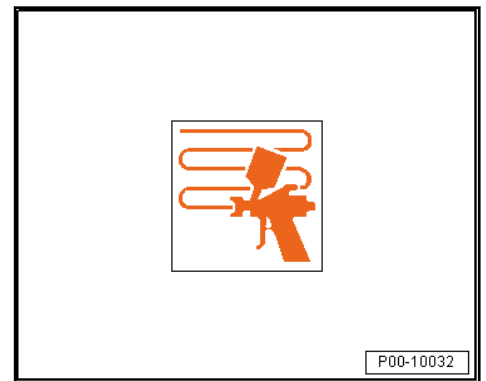
### Curing Time

Ready to spray in 45 to 60 minutes at +20 °C (68 °F) (depending on the hardener used)



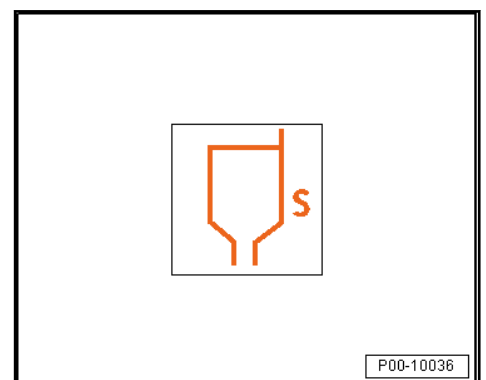
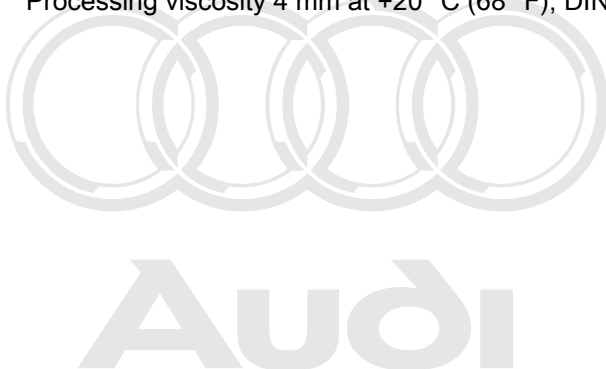
### Spray application

- Perform the application type coat.



### Processing viscosity

Processing viscosity 4 mm at +20 °C (68 °F), DIN 53211.



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## Thinner

Adding thinner at +20 °C (68 °F) material temperature:

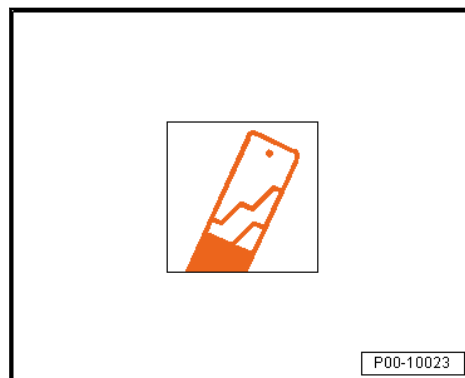
10% Two-Part Thinner, Special LVM 009 200 A2/A5, Two-Part Thinner, Long LVM 009 300 A5

### Tip

When using as a clear coat for minimal damage repairs, 10% Two-Part Thinner, Special LVM 009 200 A2/A5 can be replaced with 10% HS Spot Thinner LVM 006 000 A2.

### Condition

- Do not apply on slanted surfaces.



## Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
HVLP	1.3 - 1.4		0.7 bar (10.15 psi)
Compliant	1.2 - 1.3	2 - 2.5 bar (29.01 - 36.26 psi)	

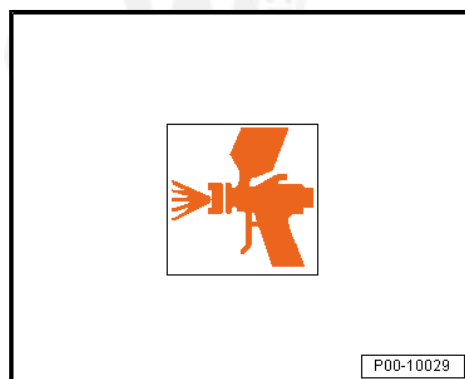
## Spray application

The first half-application creates a thin almost cohesive film.

Directly after, apply one full spray application on the entire surface.

The recommended dry layer thickness is between 40 and 60 µm.

- Apply 1.5 spray coats.



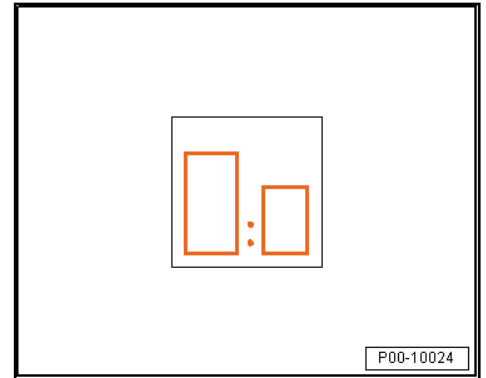
## Elastification

Elastification for rigid and semi-rigid plastics.

Mixture ratio 3:1 by volume.

- First, mix the base material with 15% Two-Part Elastic Additive ALZ 011 001.
- Mix Two-Part VHS Hardener with 10% Two-Part Thinner, Special LVM 009 200 A2/Two-Part Thinner, Long LVM 009 300 A2.

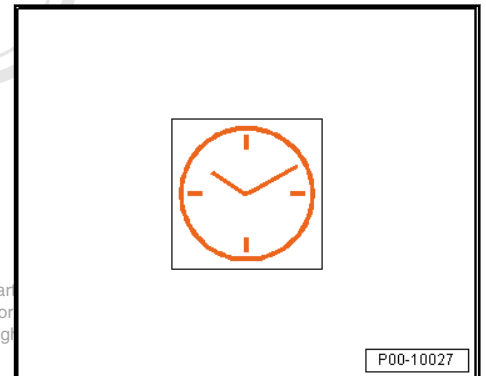
Drying time will prolong.



## Drying

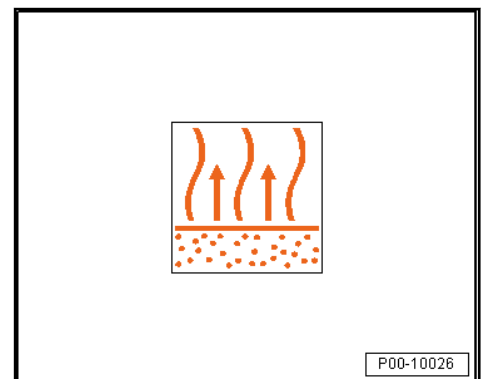
Air dry at +20 °C (68 °F) room temperature:

- ◆ Dust-dry: 15 to 30 minutes
- ◆ Ready for assembly after two to five hours
- ◆ Dry: overnight



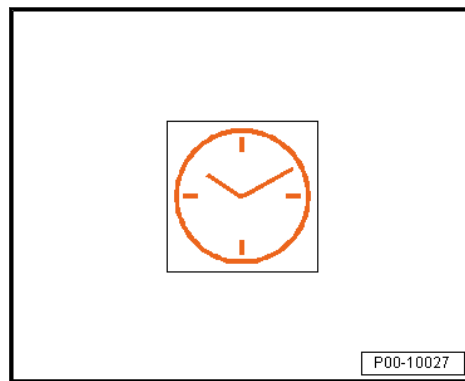
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Final flash-off time with forced drying is a minimum of five minutes.



Drying times of the two-part hardener at an object temperature of +60 °C:

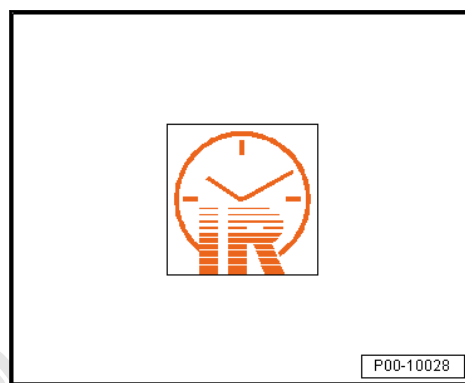
- ◆ Two-Part VHS Hardener, Short LHA 009 050 A2 for 10 to 15 minutes.
- ◆ Two-Part VHS Hardener, Short LHA 009 051 A2 for 15 to 20 minutes.
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/A3 for 20 to 30 minutes.
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2 for 25 to 30 minutes.



Final flash-off time for IR drying is a minimum of 5 minutes.



IR dry with short-wave radiator for 8 to 12 minutes.



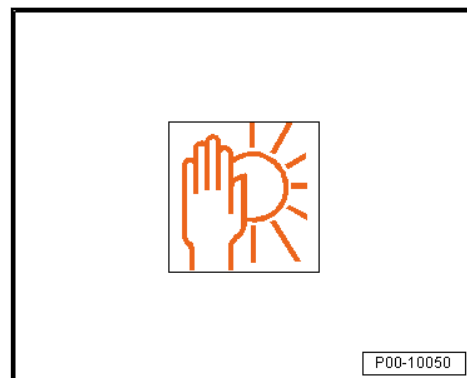
#### 4.9.6 Two-Component HS Race Clear Coat

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## Storage

Guaranteed shelf life of 48 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Properties

Two-component HS race clear coat LZK 769 K08 A5 is an easy-to-use, fast-drying and energy-saving clear coat for excellent results.

Two-component race clear coat is a versatile clear coat.

Its simple workability with excellent spreading properties as well as its fast flexible drying reduces throughput times. Moreover, the high gloss ensures good coating results.

- ◆ Suitable for all repairs, from minor damage to full surface painting.
- ◆ User-friendly usage in two spray applications with short drying time in between applications.
- ◆ Very good stability under load.
- ◆ Good paint finish thanks to the smooth flow and high gloss.
- ◆ Fast drying: 15 minutes at +60 °C (140 °F).
- ◆ Energy-saving drying: 30 minutes at +40 °C (104 °F).
- ◆ IR drying possible.
- ◆ Thanks to modern binding agent technology, polishing and assembly work can be started right after drying in the oven and a short cooling phase.

### Products:

- ◆ Two-component HS race clear coat LZK 769 K08 A5
- ◆ Two-component VHS race hardener LVM 009 008 A3
- ◆ Race additive LVM 006 008 A2
- ◆ Race blender LVM 013 008 A2

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## Application Instructions

- ◆ Two-component HS race clear coat LZK 769 K08 A5 was developed for productive drying at +40 °C and 60 °C (104 °F and 140 °F).
- ◆ Touch-up paintwork requires the use of a special touch-up thinner. Refer to ["4.9.8 Race Blender", page 245](#).

- ◆ Two-component HS race clear coat should be at a room temperature of +18 to 25 °C (64.4 to 77 °F) before use.
- ◆ Do not pour excess, ready-to-use two-component HS race clear coat back into the original container.
- ◆ Securely seal the original container immediately after use.
- ◆ Two-component HS race clear coat reacts with humidity and water, losing its ability to dry through.
- ◆ Producing a matte finish with two-component HS race clear coat is not possible.
- ◆ It is not necessary to add a two-component elastic additive ALZ 011 001 for plastic and flexible base surfaces.
- ◆ Preparation with an elasticized filler is necessary. See the data sheet for the respective filler.
- ◆ Pay attention to the additional heating time to the object temperature.

## VOC value

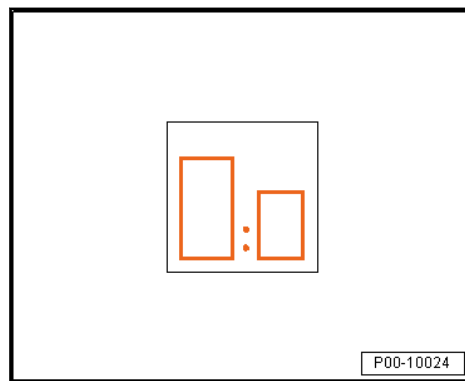
VOC value: 2004/42/IIB (c) (420) 420	The EU limit for this product (product category IIB.c) in ready-to-use form is a maximum of 420 g (14.8 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 420 g (14.8 oz)/l.
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## Processing

### Mixing ratio

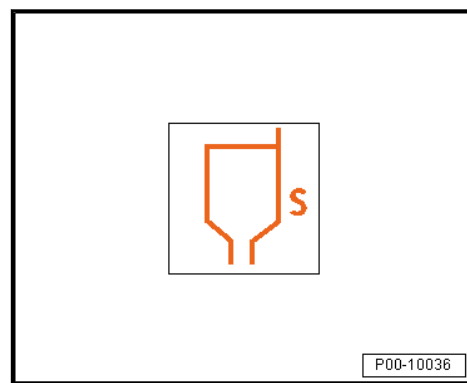
Refer to ➔ WizardWeb or the respective data sheets to find the product mix table for mixture ratios with special additives.



P00-10024

### Processing viscosity

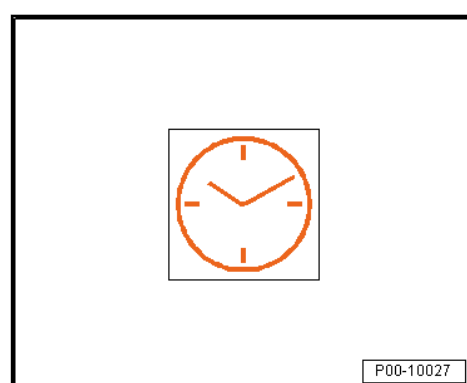
DIN 4: 14 to 16 seconds at 20 °C (68 °F)



Dry-layer thickness DFT: 50 - 60 µm

### Drying time

The two-component HS race clear coat can be overpainted within 24 hours without intermediate sanding.



Clean after use using a suitable cleaner containing a solvent.

### Theoretical yield

Theoretical yield: 500 - 505 m (1,640.4 - 1,656.8 feet)<sup>2</sup>/l at 1 µm dry-layer thickness.

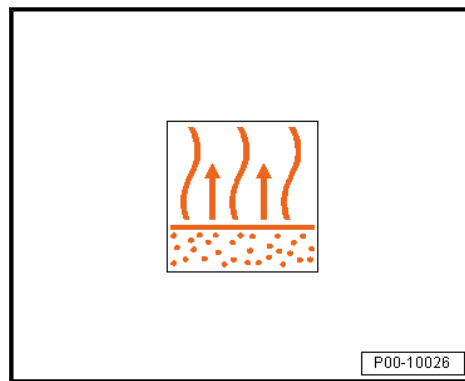
- ◆ The theoretical yield may vary due to different hardener characteristics and different mixture ratios of the ready-to-spray mixture in some data sheets.
- ◆ Practical material consumption depends on various factors, such as the geometry of the object, the surface characteristics, processing method, spray gun adjustment, inlet pressure, etc.

### Product preparation for the application of STANDARD VHS

**Water-based paint: the surface must be completely dry.**

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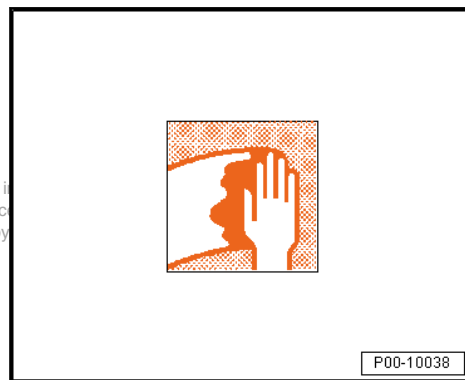
- Pay attention to the flashing-off time before application according to the respective data sheet.



- Existing paint: the surface must be sanded before application.



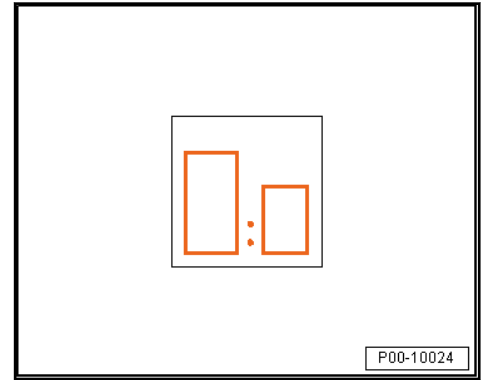
- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



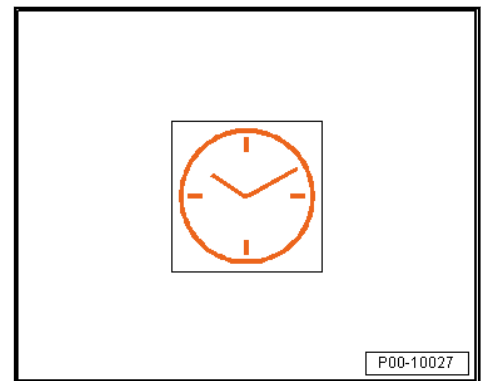
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- Pay attention to the mixture ratio:

Two-Component HS Race Clear Coat LZK 769 K08 A5		Two-Component VHS Race Hardener LVM 009 008 A3		Thinner LVM 006 008	
Volume	Weight	Volume	Weight	Volume	Weight
2	100	1	52	10%	13



- Mind the processing time at 20 °C (68 °F), 1.5 - 2 hours.

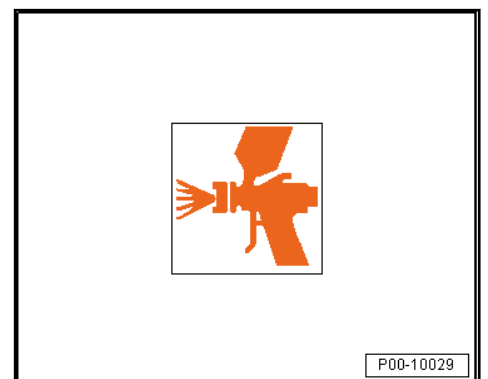


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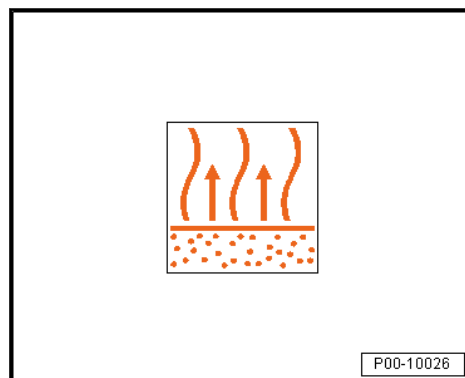
- **Adjust washer nozzle and spray pressure according to the manufacturer information.**

	Spray nozzle	Spraying pressure	
HVLP	1.2 - 1.3	0.7 bar (10.15 psi)	Atomizing pressure
Compliant	1.2 - 1.3	1.8 - 2 bar (26.11 - 29.01 psi)	Initial pressure

- Perform two spray applications.



- Mind the intermediate ventilation and final flash-off time of two to five minutes.

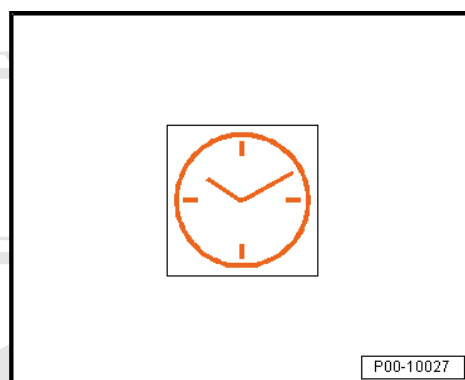


- Final flash-off time, five minutes, before IR drying.



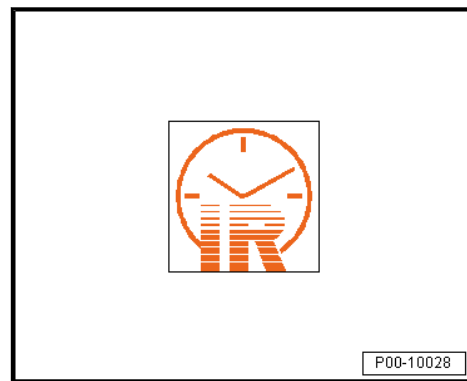
- Mind the following drying times:

Temperature	Two-Component VHS Race Hardener LVM 009 008 A3
18 to 22 °C (64.4 to 71.6 °F)	12 hours to 16 hours
40 to 45 °C (104 to 113 °F)	30 minutes to 35 minutes
60 to 65 °C (140 to 149 °F)	15 minutes to 20 minutes



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- Mind the drying time for short wave IR device.
- ◆ Half-output: two minutes
- ◆ Full-output: eight minutes

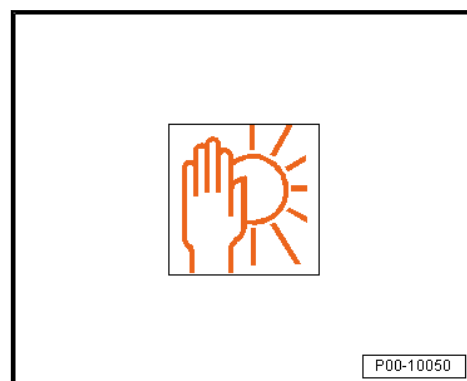


## 4.9.7 Two-Part Blender

### Storage

Guaranteed shelf life of 60 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### Properties

Two-part blender was developed for hassle-free two-part clear coat and top coat touch-up.

This product is classified according to the regulation (EC) No. 1272/2008 (CLP).

- ◆ Application pure
- ◆ Applies well on all base surfaces
- ◆ Blends well with the old paint.

### Characteristics

Flashpoint	above +20 °C (68 °F)
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### Preparation

Keep the filler surface as small as possible.

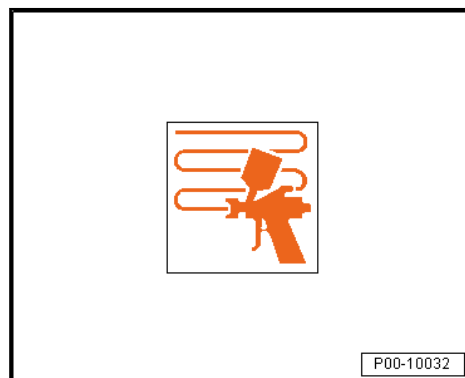
Paint over the filler spot thoroughly with water-based base paint.

Apply the overlap spray applications.

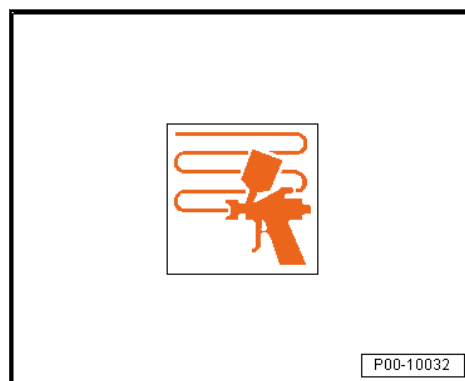


### Touch-up system for two-part clear coats

- Paint over the water-based base paint with clear coat that has been prepared for spraying.
- Apply the overlap spray applications.



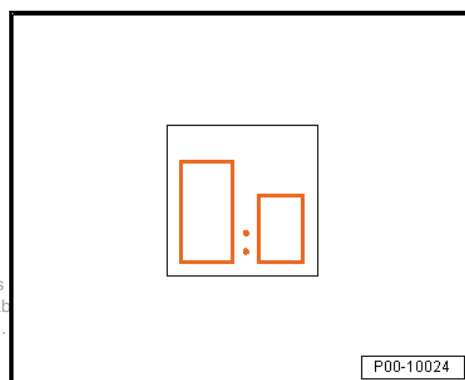
- Apply two-part blender to the blended area within the sanded surface.



### Touch-up system for two-part top coats

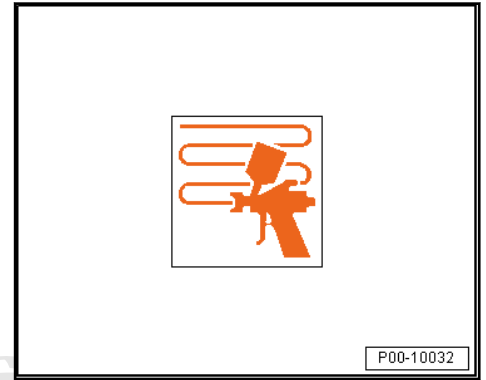
#### Mixing ratio

For setting, refer to ➔ [“4.5.1 Two-Part HS Top Coat”, page 133](#) .

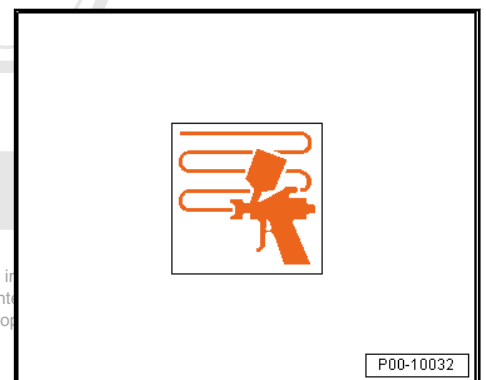


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- Coat filler area thoroughly.
- Apply the overlap spray applications.



- Apply two-part blender, pure, to the blended area within the sanded surface.



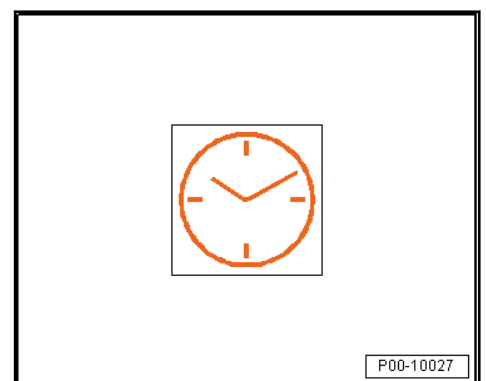
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## Drying

Air drying at +20 °C (68 °F) room temperature.

Polish the touch-up areas after they have dried overnight.

Polish touch-up areas at +20 °C (68 °F) room after they have air dried temperature overnight.

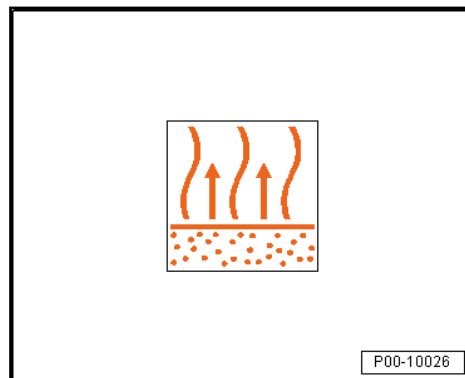


## Polishing

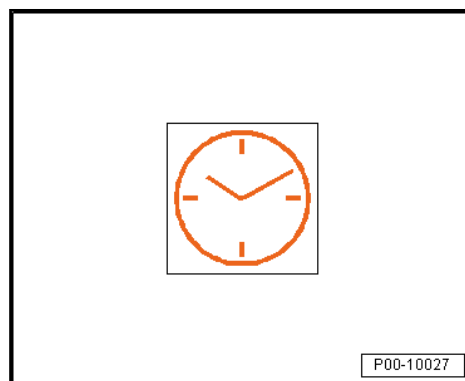
- Polish the touch-up zones with fine polishing paste, for example using Perfect-it tm III Extra Fine Grinding Paste 80349, by hand or with a polishing machine, for example Perfect-it tm III Polishing Foam 09550.
- Finally, treat the area with high-gloss sealant, for example 3M.

### Forced drying

Final flash-off time with forced drying is a minimum of 5 to 10 minutes.



Forced drying time at +60 °C (140 °F) object temperature is 30 minutes.



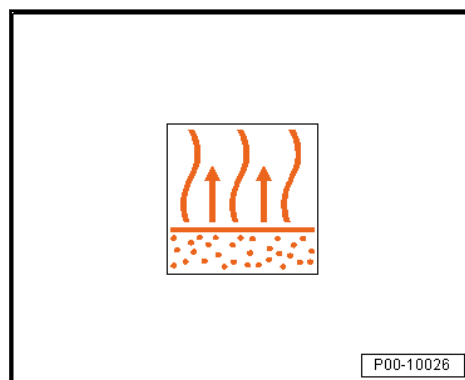
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### Polishing

- Polish the touch-up zones at +20 °C (68 °F) room temperature after one hour.

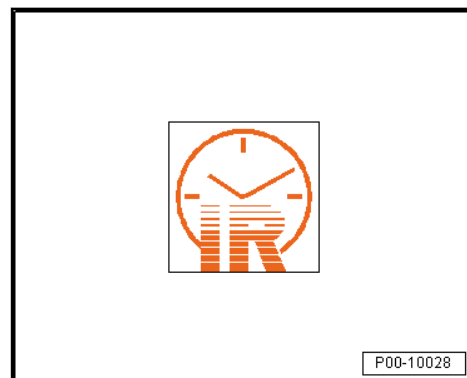
### Drying

Final flash-off time with forced drying is a minimum of 5 to 10 minutes.



### Infrared drying

IR dry with short-wave radiator for 8 to 12 minutes.



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### Polishing

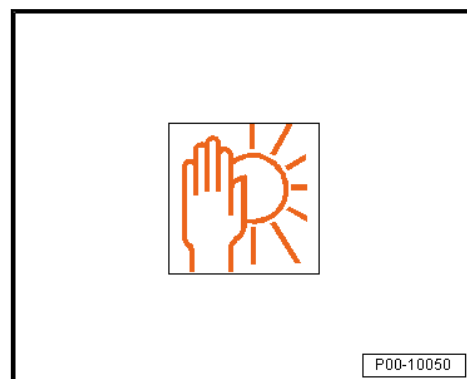
- Polish the touch-up zones at +20 °C (68 °F) room temperature after one hour.

## 4.9.8 Race Blender

### Storage

Guaranteed shelf life of 60 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### Product Description

#### Condition

- Race blender LVM 013 008 A2 may only be used with two-component HS race clear coat LZK 769 K08 A5.

Race blender has been developed to ensure an easy and effective way to equalize touch-up paint zones of the "new clear coat generation" Two-Component HS Race Clear Coat LZK 769 K08 A5:

- ◆ Very good coating on fresh clear coat film as well as old paint.
- ◆ Very fine transition zone to the old and factory paint structure.
- ◆ Excellent etching ability and structure matching.
- ◆ Fine transition to the fade-out zone.
- ◆ Little polishing effort.



- ◆ Reliable, glossy result.

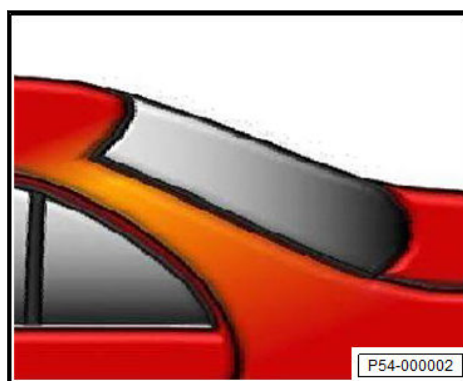
### Product preparation for STANDARD processing

Can be used with:	
Two-part hardener	Two-Component HS Race Clear Coat LZK 769 K08 A5

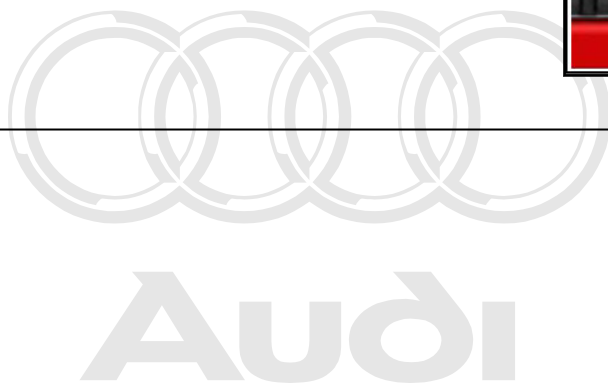
A product mix is not VOC-compliant.

### Touch-up painting for two-component HS race clear coat

- Polish the run-out area with a coarse finishing compound and wipe away all residue.
- Sand the transition to the damaged location, for example, with 3M Trizact P3000 or similar abrasive materials from other manufacturers.
- Clean the prepared area with silicone remover LSW 019 000 A5.



- Adjust according to the data sheet. Refer to ⇒ [“4.9.6 Two-Component HS Race Clear Coat”, page 234](#) .
- Use a ready-to-spray adjusted clear coat to paint over a suitable base coat quality.
- Touch-up paint the clear coat in graduated spray applications with reduced spray pressure in the sanded area and up to the edge of the polished area.



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- Apply the pure race blender in thin spray applications in the polished touch-up area.

Work with reduced spray pressure if using a spray gun.

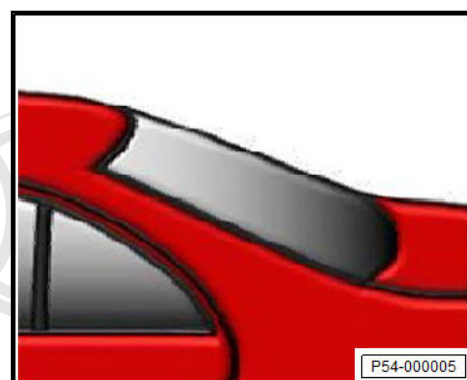
- Loosen the spray mist setting and create a soft transition.
- Dry according to the clear coat data sheet.

An additional IR re-drying of the touch-up paint zone can reduce the risk of edge cracking during polishing.



- If necessary and depending on the desired final result, the transition zone after drying and cooling can be lightly sanded with 3M Trizact P3000 or similar abrasive materials.
- Polish using a rotating polishing machine.
- Check the polishing pressure and always operate the rotation in the direction of the old paint.

Do not polish against the touch-up paint edge.



## 4.10 Hardener

⇒ [“4.10.1 Optimal Choice of Hardeners”, page 247](#)

⇒ [“4.10.2 Two-Part HS Hardener”, page 248](#)

⇒ [“4.10.3 Two-Part VHS Hardener”, page 251](#)

⇒ [“4.10.4 Two-Part Adhesive Filler Hardener”, page 254](#)

### 4.10.1 Optimal Choice of Hardeners

Product	HS hardener	Elastification	VHS Hardener	Elastification
		With 15% elastic additive ALZ 011 00 1		With 15% elastic additive ALZ 011 00 1
Two-Part HS Premium Filler LGF 013 0 07/100/171 /190	4:1	3:1	7:1 + 10% thinner	4:1 + 5% thinner
Two-Part Vario Filler, Gray LGF 786 004 A3	3:1 + 10 - 15% thinner	2:1 + 20% thinner	5:1 + 10 - 20% thinner	3:1 + 20% thinner
As wet-on-wet fillers	3:1 + 20 - 25% thinner	Not recommended	5:1 + 30% thinner	Not recommended

Product	HS hardener	Elastification	VHS Hardener	Elastification
Two-Part HS Vario Clear Coat L2K 769 K01 A5	2:1	2:1	3:1 + 12.5 % Thinner, Special LVM 009 200 A2/A5	3:1 + 20% Thinner, Special LVM 009 200 A2/A5
Two-Part HS Clear Coat L2K 769 500 A5	2:1	2:1	3:1 + 12.5 % - 15% Thinner, Special LVM 009 200 A2/A5	3:1 + 15% Thinner, Special LVM 009 200 A2/A5
15% Two-Part Elastic Additive ALZ 011 001 must be added to the base material first.				

## 4.10.2 Two-Part HS Hardener

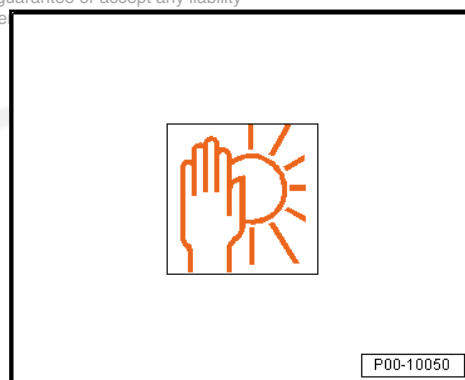
### Storage

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Guaranteed shelf life of 36 months from production date.

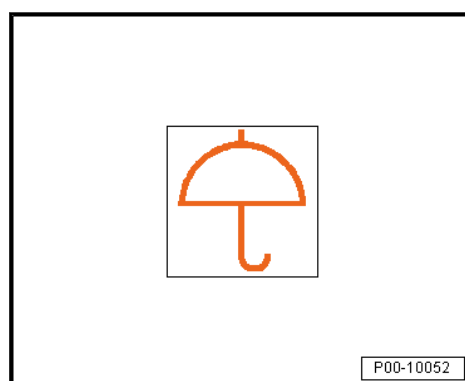
- ◆ Two-Part HS Hardener LHA 009 041 A3
- ◆ Two-Part HS Hardener, Extra Short LHA 009 046 A2
- ◆ Two-Part HS Hardener, Long LHA 009 047 A3
- ◆ Two-Part HS Hardener, Extra Long LHA 009 048 A3
- ◆ Two-Part HS Hardener, Short LHA 021 004 A3

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

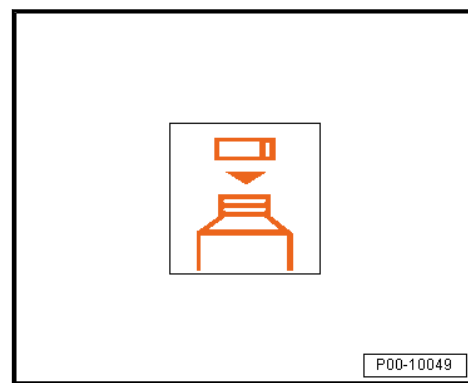


### Storage Conditions

Protect against moisture.



Seal the container airtight immediately after removing the hardener.



### Characteristics

	Two-Part HS Hardener, Extra Short LHA 009 046 A2	All other two-part HS hardeners
Flashpoint	above +21 °C (69.8 °F)	above +23 °C (73.4 °F)

### Properties

Two-part HS hardeners are high solid hardeners for several HS fillers and clear coats.

These products are classified according to the regulation (EC) No. 1272/2008 (CLP).

- ◆ It has a high solid content for economical and environmentally friendly application.

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- ◆ The choice of five versions means it can adapt well to all painting conditions and ensure reliable application.

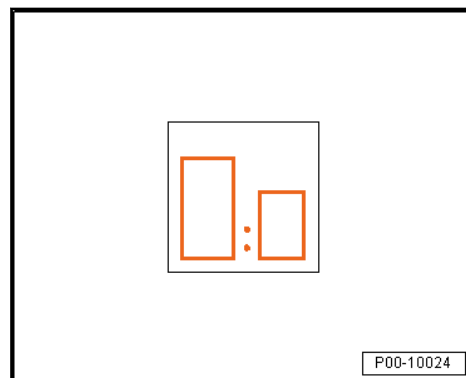
### Area of application

- ◆ The Two-Part HS Hardener LHA 009 041 A3 is suitable for all complete and partial painting at normal temperatures.
- ◆ The Two-Part HS Hardener, Short LHA 021 004 A3 is suitable for partial painting at low temperatures and low spray booth ventilation volumes.
- ◆ The Two-Part HS Hardener, Extra Short LHA 009 046 A2 is suitable for spot repairs and partial painting at low temperatures.
- ◆ The Two-Part HS Hardener, Long LHA 009 047 A3 is suitable for all complete and partial painting at high temperatures.
- ◆ The Two-Part HS Hardener, Extra Long LHA 009 048 A3 is suitable for all complete and partial painting at very high temperatures and is characterized by its good flow properties.



## Mixing ratio

Refer to the reference sheets of the respective base component.



## Hardener selection

Hardener selection	Two-Part HS Hardener LHA 009 041 A3	Two-Part HS Hardener, Short LHA 021 004 A3	Two-Part HS Hardener, Extra Short LHA 009 046 A2	Two-Part HS Hardener, Long LHA 009 047 A3	Two-Part HS Hardener, Extra Long LHA 009 048 A3
Partial or complete painting, large areas	+	-	--	++	++
Partial painting, minor repairs	+	++	++	+	--
High temperatures above +25 °C (77 °F)	+	--	--	+	++
Very high temperatures: +30 °C to +35 °C (86 °F to 95 °F)	-	--	--	+	++
Normal temperature +20 °C to +25 °C (68 °F to 77 °F)	++	-	--	++	+

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Harden- er selec- tion	Two-Part HS Harden- er LHA 009 041 A3	Two-Part HS Harden- er, Short LHA 021 004 A3	Two-Part HS Harden- er, Extra Short LHA 009 046 A2	Two-Part HS Harden- er, Long LHA 009 047 A3	Two-Part HS Harden- er, Extra Long LHA 009 048 A3
Low tempera- ture +15 °C to +20 °C (59 °F to 68 °F)	-	+	++	-	--
Oven drying	++	+	+	++	++
air dry- ing	++	++	++	+	+

++ - optimum

+ - suitable

- partially suitable

-- not suitable

### 4.10.3 Two-Part VHS Hardener

#### Storage

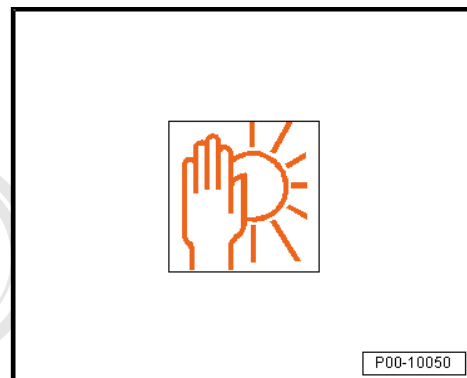
Guaranteed shelf life of 36 months from production date.

- ◆ Two-Part VHS Hardener, Short LHA 009 050 A2
- ◆ Two-Part VHS Hardener LHA 009 051 A2
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2

Guaranteed shelf life of 12 months from production date.

- ◆ Two-Part VHS Performance Hardener LVM 009 038 A2
- ◆ Two-Part VHS Performance Hardener, Long LVM 009 039 A2

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



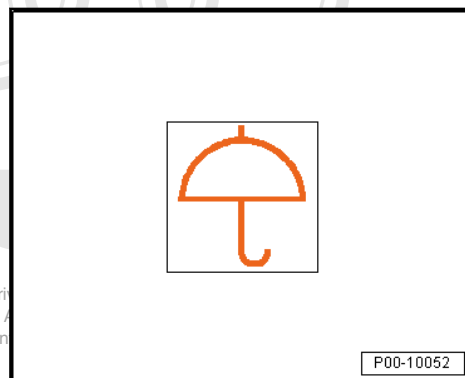
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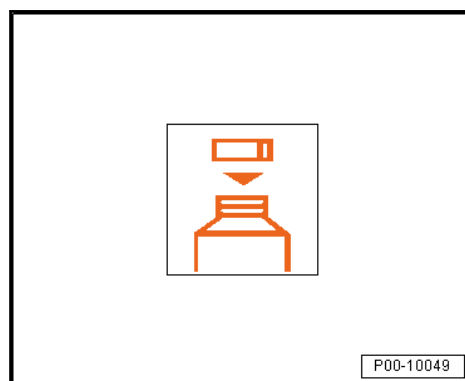
## Storage Conditions

Protect against moisture.

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Seal the container airtight immediately after removing the hardener.



## Characteristics

Flashpoint	+24 °C (75.2 °F) all VHS-hardeners
------------	------------------------------------

## Product Description

VHS hardeners are suitable for use with high solid products.

These products are classified according to the regulation (EC) No. 1272/2008 (CLP).

It has a very high solid content for economical and environmentally friendly application.

Thanks to the selection of four variants, it adapts perfectly to the painting conditions, thus ensuring high reliability of application.

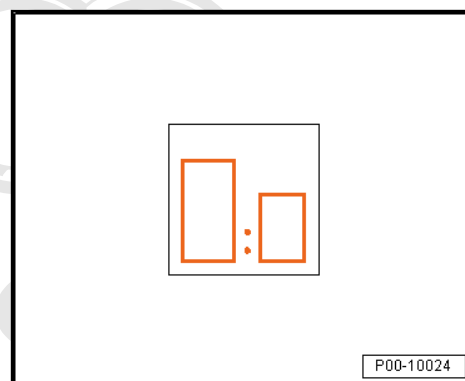
## Area of application

- ◆ The Two-Part VHS Hardener, Short LHA 009 050 A2 is suitable for partial painting and low spray booth ventilation volumes.

- ◆ The Two-Part VHS Hardener LHA 009 051 A2 is suitable for all complete and partial painting at normal temperatures.
- ◆ The Two-Part VHS Hardener, Long LHA 009 052 A2/A3 is suitable for all complete and partial painting at high temperatures.
- ◆ The Two-Part VHS Hardener, Extra Long LHA 09 053 A2 is suitable for all complete and partial painting at very high temperatures.
- ◆ The Two-Part VHS Performance Hardener LVM 009 038 A2 is suitable for all complete and partial painting at normal temperatures.
- ◆ The Two-Part VHS Performance Hardener, Long LVM 009 039 A2 is suitable for all complete and partial painting at very high temperatures.

### Mixing ratio

Refer to the reference sheets of the respective base component.



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### Hardener selection guide

Hardener selection	Two-Part VHS Hardener, Short LHA 009 050	Two-Part VHS Hardener LHA 009 051 A2	Two-Part VHS Hardener, Long LHA 009 052	Two-Part VHS Hardener, Extra Long LHA 009 053 A2	Two-Part VHS Performance Hardener LVM 009 038 A2	Two-Part VHS Performance Hardener, Long LVM 009 039
Partial or complete painting, large areas	- -	+	+	++	+	++
Partial painting, minor repairs	++	+	+	+	+	+

Hard-ener selection	Two-Part VHS Hard-ener, Short LHA 009 050	Two-Part VHS Hard-ener LHA 009 051 A2	Two-Part VHS Hard-ener, Long LHA 009 052	Two-Part VHS Hard-ener, Extra Long LHA 009 053 A2	Two-Part VHS Performance Hard-ener LVM 009 038 A2	Two-Part VHS Performance Hard-ener, Long LVM 009 039
High temperatures above +25 °C (77 °F)	- -	+	+	++	+	++
Very high temperatures: +30 °C to +35 °C (86 °F to 95 °F)	- -	-	-	++	-	++
Normal temperature +20 °C to +25 °C (68 °F to 77 °F)	- -	++	++	++	++	++
Low temperature +15 °C to +20 °C (59 °F to 68 °F)	++	-	-	-	-	-
Oven drying	+	++	++	++	++	++
air drying	++	++	++	+	+	+

++ - optimum

+ - suitable

- partially suitable

- - not suitable

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#### 4.10.4 Two-Part Adhesive Filler Hardener

For application and processing information, refer to ➤ [“4.3.2 Two-Part Plastic Adhesive Filler”, page 83](#) .

## 4.11 Thinners

⇒ [“4.11.1 Two-Part Thinner”, page 255](#)

⇒ [“4.11.2 AquaPlus Purified Water”, page 258](#)

⇒ [“4.11.3 HS Spot Thinner”, page 258](#)

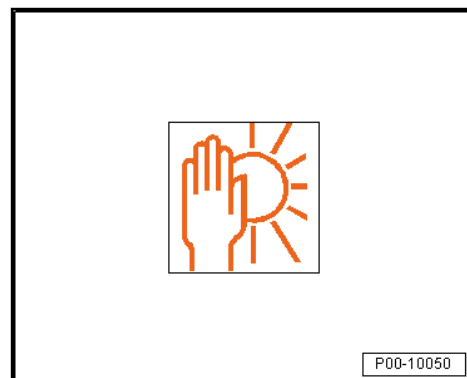
### 4.11.1 Two-Part Thinner

#### Storage

Guaranteed shelf life of 48 months from production date.

- ◆ Two-Part Thinner, Plus LHA 014 000 A5
- ◆ Two-Part Thinner LVE 009 001 A5
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5
- ◆ Two-Part Thinner, Long LVE 009 300 A2/A5
- ◆ Nitro Thinner LVE 856 000 A3

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



#### Product Description

The following section describes the VW thinners that are optimally suited to vehicle paint repairs.

These thinners can be used to alter the viscosity of the base products to achieve the best application under all conditions.

These products are classified according to the regulation (EC) No. 1272/2008 (CLP).

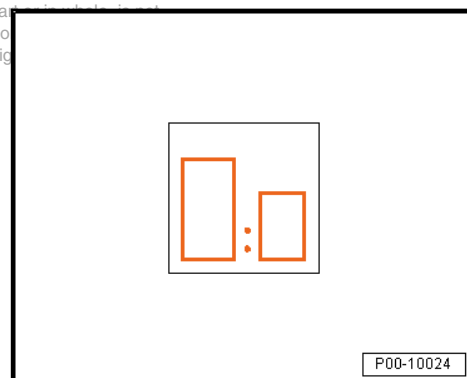
#### Condition

- Thinners may not be used for thinning water-based base paints.

#### Mixing ratio

Refer to the reference sheets of the respective base component.

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## Thinner selection

Two-Part Thinner	Two-Part Thinner, Plus LHA 014 000 A5	Two-Part Thinner LVE 009 001 A2/A5	Two-Part Thinner, Special LVM 009 200 A2/A5	Two-Part Thinner, Long LVE 009 300 A2/A5
Two-Part HS Top Coat	+	+	++	++ 1)
Two-Part HS Clear Coat**	--	--	++	-
Two-Part Acrylic Primer/Filler	++	++	++	++ 1)
Wash Primer	++	++	++	- 1)

++ optimum

+ suitable

- partially suitable

-- not suitable

1) Only for temperatures above +25 °C (77 °F)

\* table gives a general overview of the options for using the thinners listed here. Any additional information in the data sheets for the respective base component should take precedence.

\*\* Two-part HS clear coat which is used in a 3:1 mixing ratio with VHS hardeners plus thinner.

## Two-Part Thinner, Plus LHA 014 000 A5

Main area of application	Usable thinner for all two-part acrylic products with drying accelerator.
Use	For adjusting viscosity of base materials and top coats at low and moderate temperatures.
Flashpoint	above +23 °C (73.4 °F)

## Two-Part Thinner LVE 009 001 A2/A5

Main area of application	Universally usable thinner for all two-part acrylic products.
--------------------------	---

Use	For adjusting viscosity of base materials and top coats at low and moderate temperatures.
Flashpoint	above +23 °C (73.4 °F)

### Two-Part Thinner, Special LVM 009 200 A2/A5

Main area of application	A specially designed thinner with viscosity-reducing properties. Especially suitable for the two-part HS top coat, two-part acrylic filler and two-part HS clear coat, which are used in a 3:1 ratio with VHS hardeners plus thinner.
Use	For adjusting viscosity of base materials and top coats at low and moderate temperatures.
Flashpoint	above +23 °C (73.4 °F)

### Two-Part Thinner, Long LVE 009 300 A2/A5

Main area of application	A specially designed thinner with viscosity-reducing properties. Especially suitable for the two-part HS top coat, two-part acrylic filler. Can positively influence the VOC value of various products.
Use	For optimizing and improving the paint mist adhesion at spray booth temperatures above +25 °C (77 °F) and the presence of large surfaced objects at the same time.
Flashpoint	above +23 °C (73.4 °F)

### Nitro Thinner LVE 856 000 A3

Main area of application	Equipment cleaner and degreaser.
Flashpoint	above +23 °C (73.4 °F).



VOC value: 2004/42/IIB (a)  
(850) 840

The EU limit for this product (product category IIB.a) in ready-to-use form is a maximum of 850 g (30 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 840 g (29.6 oz)/l.

#### 4.11.2 AquaPlus Purified Water

No reference sheet is needed for purified water Aquaplus.

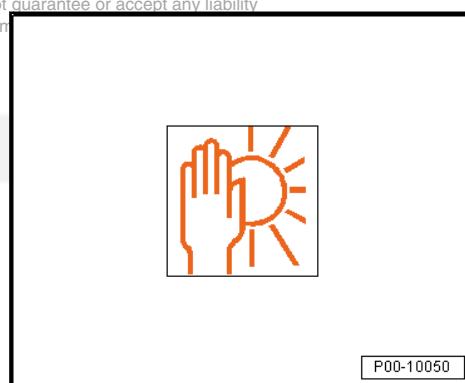
#### 4.11.3 HS Spot Thinner

##### Storage

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Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



##### Characteristics

Flashpoint	above +21 °C (69.8 °F)
------------	------------------------

##### Product Description

HS Spot Thinner LVM 006 000 A2 is a special drying accelerator for minor repairs in certain two-part HS clear coats and two-part HS top coats. The clear coat and top coat remain VOC compliant at the specified mixture.

This product is classified according to the regulation (EC) No. 1272/2008 (CLP).

- ◆ Area of application: Clever repair
- ◆ Only for small surfaces
- ◆ Do not apply to horizontal surfaces

##### Suitable base surfaces

Refer to the reference sheet of the respective base product.

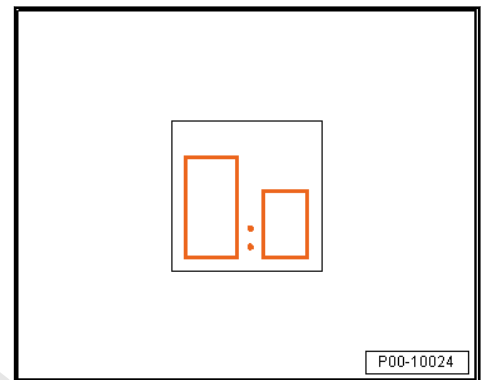
### Suitable preliminary coatings:

- ◆ Two-Part HS Brilliant Plus Clear Coat LZK 769 K05 A5
- ◆ Two-Part HS Vario Clear Coat L2K 769 K01 A5
- ◆ Two-Part HS Performance Clear Coat LZK 769 K06 A5
- ◆ Two-Part HS Optimum Plus Clear Coat LZK 769 K07 A5
- ◆ Two-Part HS Solid Top Coat L2K 073 ...
- ◆ Two-Part HS Mixed Paint L2K 074 ...

### Mixing ratio

Mixing ratio 3:1 by volume with:

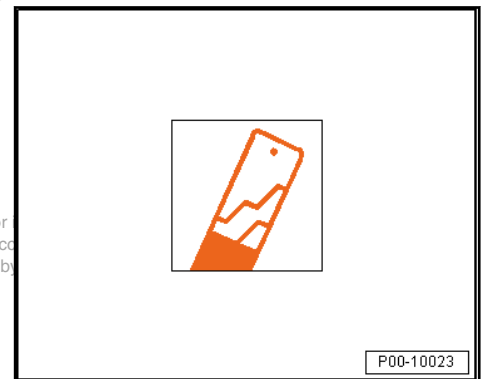
- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5
- ◆ Two-Part VHS Hardener, Short LHA 009 050 A2



### Thinner

Dilutable with:

- ◆ HS Spot Thinner LVM 006 000 A2 instead of Two-Part Thinner, Special LVM 009 200 A2/LVM 009 200 A5
- ◆ +5% for Two-Part HS Brilliant Plus Clear Coat LZK 769 K05 A5
- ◆ + 12.5% for HS Vario Clear Coat L2K 769 K01 A5
- ◆ +5% for Two-Part HS Performance Clear Coat LZK 769 K06 A5
- ◆ + 10% for Two-Part HS Optimum Plus Clear Coat LZK 769 K07 A5
- ◆ +12.5% for Two-Part HS Solid Top Coat L2K 073 ... /Two-Part HS Mixed Paint L2K 074 ...

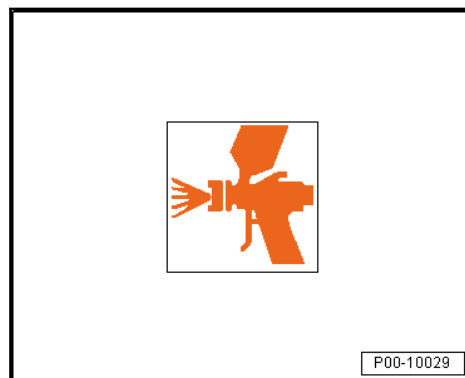


## Application

Ready to spray in 35 to 45 minutes at +20 °C (68 °F) (clear coat with Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5)

Ready to spray in 50 to 60 minutes at +20 °C (68 °F) (clear coat with Two-Part HS Solid Top Coat L2K 073 ... /Two-Part HS Mixed Paint L2K 074 ...)

For processing the clear coats and two-part HS mixed/top coat, refer to the respective data sheet.



- ◆ Technological disadvantages can occur with large surface applications and horizontal surfaces, for example, the hood.
- ◆ A "short" hardening system is preferred when using inside the clever repair system.

## 4.12 Preservation

⇒ ["4.12.1 Preserving Wax", page 260](#)

⇒ ["4.12.2 Cavity Sealing", page 262](#)

⇒ ["4.12.3 Cavity Sealants, Spray Cans", page 263](#)

### 4.12.1 Preserving Wax

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#### CAUTION

When preserving the engine compartment of vehicles and motors of other equipment, the engines or motors should only be switched on after the protective wax film has been allowed to ventilate thoroughly.

There is a danger of explosions due to evaporated solvents

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## Product Description

The Preservation Wax D 321 M15 M1 and Preservation Wax D 321 M16 M2 are spray-on wax-based rust-protection agents.

Preservation wax is a thin liquid.

After drying, a strongly adhesive, viscous plastic-like and water-proof film which is more or less colorless.

The flow point of the dry substance is over +100 °C (212 °F), meaning that running or dripping is unlikely even in the engine compartment.

The dry film adheres well to bare and painted surfaces.

---

## Application areas

- ◆ Preservation wax is used for the preservation of seams, surfaces and cavities in vehicles.
- ◆ Its bright color makes preservation wax especially suitable for protecting the seams of the hood and in the luggage compartment.
- ◆ The preservation wax is also preferred for treating the cleaned engine compartment.

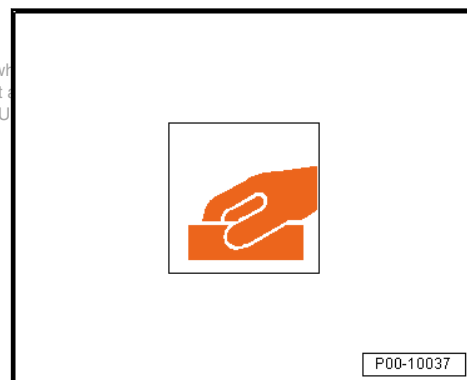
## Sand

### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet.
- Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.

- Remove rust.

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## Cleaning

- Thoroughly clean the areas to be treated with preservation wax beforehand.

### Condition

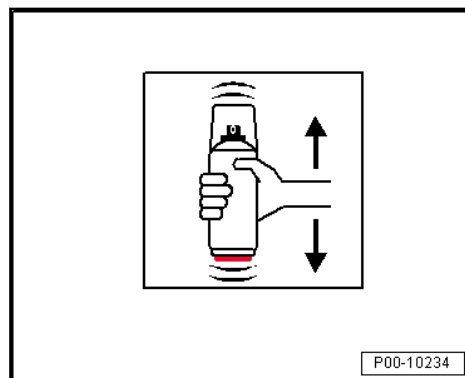
- The surfaces must be dry, free of grease, dirt and dust.
- The stone chip protection should be at room temperature during application.





### Spray can

- Shake up the can contents well before using.
- Spray on the preserving wax and let it dry.
- Do not spray on visible exterior parts as the dry film causes a matte appearance.



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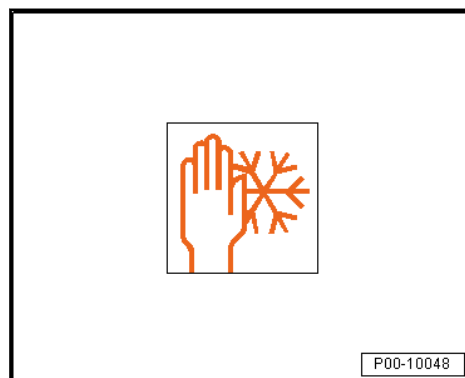
### Characteristics

Cleaning with	Test fuel Cold cleaners Petroleum
Processing temperature	+15 °C to +30 °C (59 °F to 86 °F)

## 4.12.2 Cavity Sealing

### Storage

Can be stored up to 12 months at temperatures up to +35 °C (95 °F) while still in its original container.



### Product Description

Cavity Sealant D 329 215 M2/D 329 215 M1 are solvent-free corrosion protection coatings to seal cavities.

The hardened protective film has very good adhesion to various metallic base surfaces (such as steel, zinc, cathaphoretic dip coating (CDC), phosphated surfaces).

It offers excellent long-term corrosion protection from a layer thickness of approximately 30 µm.

- ◆ Spraying makes it easy to use
- ◆ Quality control with UV light
- ◆ Controlled flow behavior, possible support from a drop-stop effect

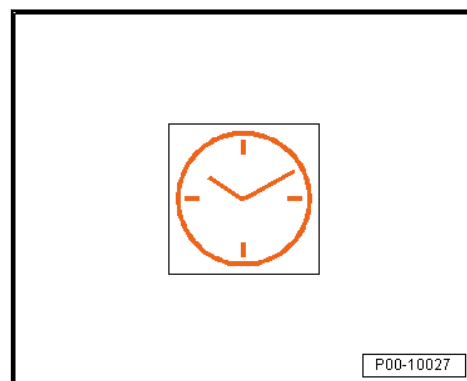
- ◆ Excellent high-temperature stability of the hardened film
- ◆ Hardening at room temperature
- ◆ 100% active ingredient, solvent-free, VOC-free
- ◆ The product can thicken in cold / hot storage temperatures or during transport. If this is the case, it can be restored to its original condition by stirring it gently once the product has reached room temperature.

### Application

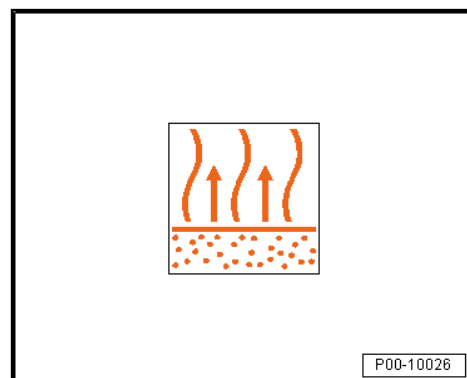
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- ◆ Processing developed with commercially available airless and air-mix application systems at room temperature. Application using a brush is also possible under certain requirements, such as in the case of repairs.
  - ◆ Overspray can be removed with suitable cleaners, even if the product has already hardened.

### Drying

Hardening at room temperature.



- Ensure sufficient ventilation.



## 4.12.3 Cavity Sealants, Spray Cans

### Product Description

The spray can cavity sealant D 308 SP5 A1 provides optimal corrosion protection for areas in the body that are most at risk

for corrosion, such as steel trim, folded edges, gaps, flanges, edges and surfaces.

This long-term corrosion protection is established through sufficient penetration as well as exceptional adhesion to the cavity sealant on the metallic surface.

The top coat compatibility and removability as well as the compatibility with the rubber and plastic attachments is created.

### Application

Recommended dry layer thickness 30 µm.

### Characteristics

Propane-butane content	45 to 49%
Active ingredient content	22 to 26%
Solvent content	27 to 31%
Viscosity DIN 53211, 4 mm	16 to 22 seconds
Dropping point of solid matter	>150 °C
Cleaning	With mineral spirits
Processing temperature	+18 °C (64.4 °F) through +25 °C (77 °F)
Flashpoint PM DIN EN 22719	27 to 33 °C (80.6 to 91.4 °F)
Color	Light beige
Application temperature	+10 °C to +30 °C (50 °F to 86 °F)
Frost resistance	Through -30 °C (-22 °F)

## 4.13 Underbody Protection

⇒ [“4.13.1 Long-Term Underbody Protection”, page 264](#)

⇒ [“4.13.2 Stone Chip Protection AKR 311 KD1 05”, page 269](#)

⇒ [“4.13.3 Stone Chip Protection AKR 311 KD1 10”, page 272](#)

⇒ [“4.13.4 Underbody Protection Wax D 316 D38 A2”, page 279](#)

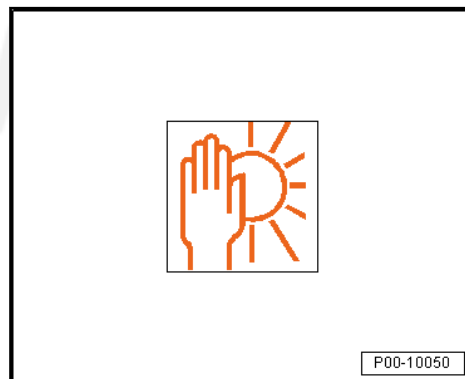
⇒ [“4.13.5 Underbody Protection, Black D 314 D39 A3”, page 282](#)

### 4.13.1 Long-Term Underbody Protection

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#### Storage

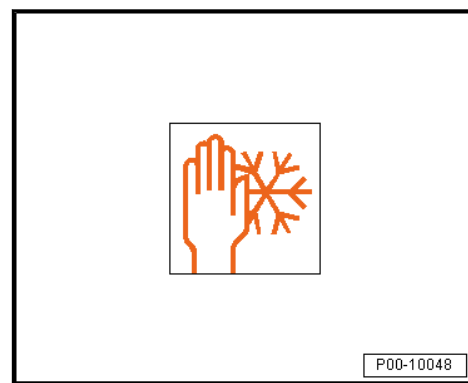
Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Storage Conditions

The recommended storage temperature for the long-term underbody protection, D 314 D36 M2/D37 M2/D38/M2 is +10 °C to 25 °C (50 °F to 77 °F).

- ◆ The recommended storage temperature is +20 °C (68 °F).
- ◆ The temperature must not fall below +5 °C (41 °F)



## Characteristics

Color	white, black or gray not covering
Odor	Slightly like ammonia
Density	1.25 g (0 oz)/cm <sup>3</sup>
Solid matter content	70%
Viscosity	1 Pas
Measuring instrument	Rheomat STV
Measuring system	Rotor 30
Speed	200 rpm
Stability	Up to 1 mm wet
Processing temperature	+10 °C to +25 °C (50 °F to 77 °F)
Application temperature short term, up to one hour	-25 °C to +80 °C (-13 °F to 176 °F) +100 °C (212 °F)

## Product Description

Long-Term Underbody Protection D 314 D36 M2/D37 M2/D38/M2 is a bright, translucent coating compound (not opaque) with a diluted synthetic dispersion base that is sprayed with a UBS-, paint- or filler spray gun.

The drying time depends on the layer thickness, ambient temperature and the surrounding humidity. Good ventilation and higher temperatures shorten drying time.

The dried film shows good adhesion to galvanized and cathodic primed steel panels, as well as painted base surfaces.

Due to the high resistance to abrasion and low-temperature flexibility, the long-term underbody protection is characterized by its quality stone chip protection characteristics.

The long-term underbody protection can be quickly applied/painted over with water-based paints.

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The long-term underbody protection can be applied to all conventional sealants, except silicone, and is characterized by its good adhesion.

After air drying two to three hours, the long-term underbody protection can also be painted over with conventional painting systems.

The long-term underbody protection surface can become weaker if using plasticized sealants and also have a certain tackiness. The long-term underbody protection will not lose its adhesion due to this.

The long-term underbody protection can be colored, mixed with water-based paints and diluted with demineralized water. To color, an addition of up to 30% volume of ready to spray water-based paint is possible.

The long-term underbody protection is applied using rustproof filler or paint spray guns. For adjustment, the long-term underbody protection can be thinned with distilled or demineralized water. Add a maximum of 10% of volume addition.

Due to the variations of mixture ratios, application pressures and intervals, smooth surfaces and fine to coarse structures can be produced.

To replicate the conventional structures, the best results are achieved using a spray-ready mixture with 10 to 15% of base paint.

Before application, the long-term underbody protection should be filtered using a paint strainer.

The long-term underbody protection is only temporarily resistant to gasoline and cold cleaners.

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## Application

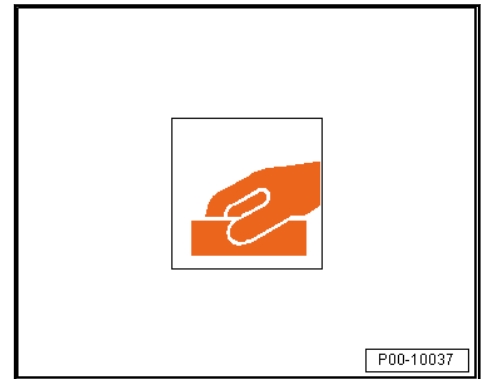
- ◆ Long-Term Underbody Protection  
D 314 D36 M2/D37 M2/D38/M2 is suited for repair work on the underbody, wheel housing, front and rear areas. It is used on visible components, such as on the side sill, as paintable protection against stone impact, road salt and moisture corrosion.
  - ◆ The long-term underbody protection is used to reestablish different surface structures on vehicles of all types after a repair.
  - ◆ A particular advantage is the variable coloring by using original base paint by up to 30%. Scratches or stone impacts become almost invisible.
- 

## Sand

### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet.
  - Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.
-

- Remove rust.



### Cleaning

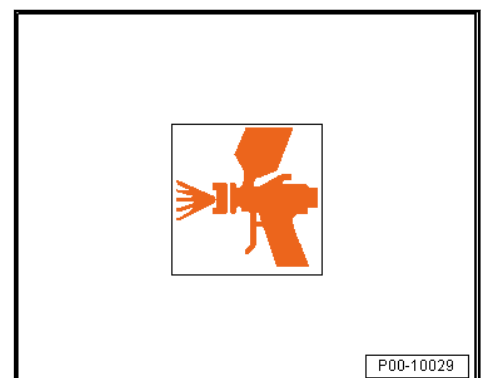
- Thoroughly clean the areas to be treated with long-term underbody protection beforehand.



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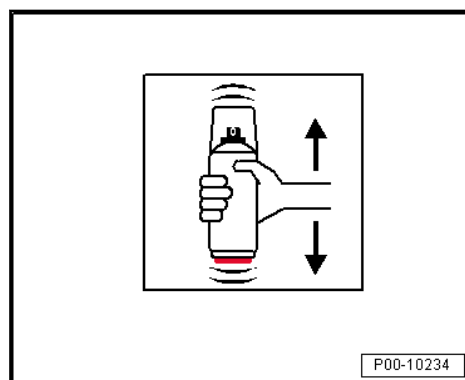
### Processing

- Prime and fill uncoated steel surfaces before application of the long-term underbody protection.



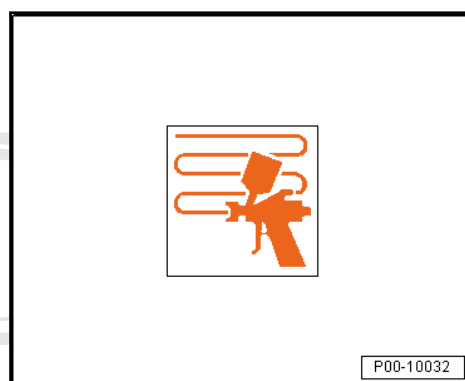
### Spray can

- Shake up the can contents well before using.



### Spray application

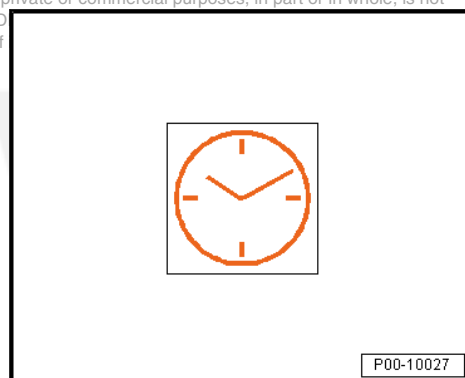
- The first layer should not be applied too thick. Apply a half spray application.



### Drying

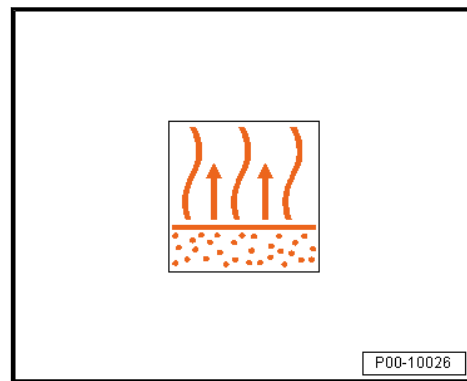
After a short drying period, the long-term underbody protection is a matte surface and can be painted over with water-soluble paints up to 72 hours after application.

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The long-term underbody protection has a quick-drying thick layer system.

- If accelerating the drying period in an airflow, then make sure that the rapidly forming film is not being actively blown onto the material that is still drying. This could lead to crack formation.



### Cleaning

- Immediately remove splashes on painted surfaces, using Plastic Cleaner D 195 850 A1.
- Equipment or the dirty parts of the equipment should be cleaned with water immediately after application, and if necessary, adding a diluted cleaner.

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### Condition

- Solvent containing cleaners must not be used due to clotting.

After drying, the long-term underbody protection can only be removed using a tool.



## 4.13.2 Stone Chip Protection AKR 311 KD1 05

### Condition

- Do not apply onto moving or high-temperature components such as the steering, engine, transmission, drive axle, exhaust system, catalytic converter and brake system.

### Characteristics

Color	Bright/black
Odor	Solvent
Thickness after two to three cross applications	250 - 300 µm dry film
Drying time	Dust dry after two hours
Processing temperature	+15 °C to +25 °C (59 °F to 77 °F)
Application temperature short term, up to one hour	-29 °C to +70 °C (-20.2 °F to 158 °F) +100 °C (212 °F)



## Product Description

Stone Chip Protection AKR 311 KD1 05 is a finely atomizing coating material with a synthetic resin base.

The dried film adheres very well to cleaned base surfaces as well as to a bare and painted panel.

Stone chip protection is characterized by a high covering capacity, good protection against corrosion, high resistance to abrasion and good protection against stone impacts.

After seven minutes, the quick-drying stone chip protection spray can be painted over using commercially available vehicle paint systems.

Oven drying at 60 °C (140 °F) is possible without any problems.

Extraordinary mechanical stress, for example, automatic car washes, should be avoided in the first few weeks.

Pay attention to the information provided by the manufacturer regarding the mechanical resilience of the recoated areas.

---

## Application

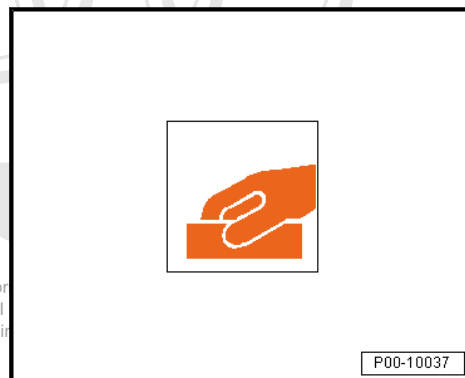
- ◆ Stone Chip Protection AKR 311 KD1 05 is used on visible components, such as front and rear aprons and door sills to protect against stone impact, grit, and moisture corrosion. It can be quickly painted over.
  - ◆ The stone chip protection is also used to supplement stone chip protection linings, for work on particular points of a vehicle and during accident repair work.
- 

## Sand

### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet.
  - Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.
- 

- Remove rust.



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### Cleaning

- Thoroughly clean the areas to be treated with stone chip protection beforehand.

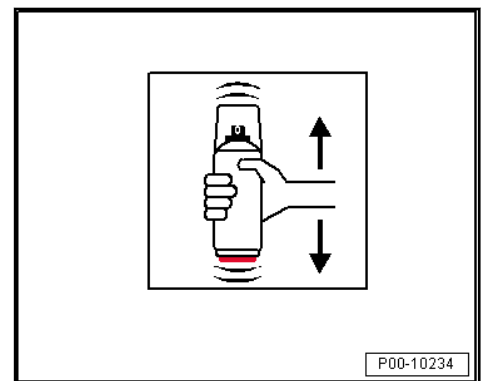
#### Condition

- The surfaces must be dry, free of grease, dirt and dust.
- The stone chip protection should be at room temperature during application.



### Spray can

- Shake the spray can thoroughly. When the ball bearings start to rattle, continue shaking for one minute.



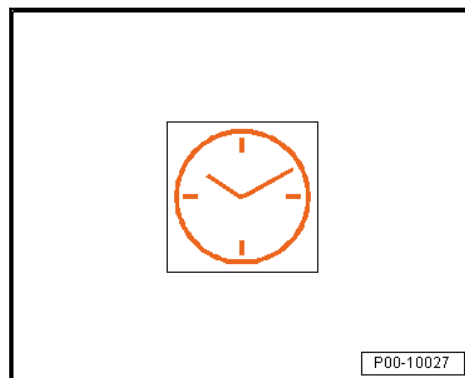
- Hold the spray can vertically when spraying and spray from a distance of 20 to 30 cm.



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### Drying

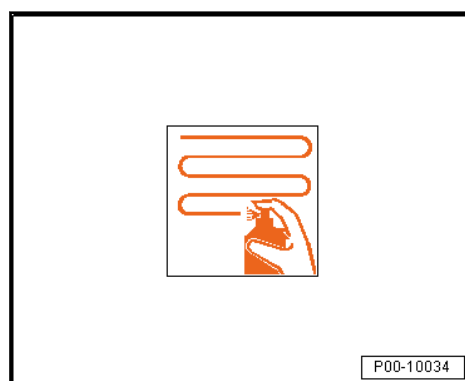
- If parts of the vehicle were covered before spraying, the covers should be removed before drying.



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### Spray application

- Abrasion and corrosion protection increases with the layer thickness. Repeat the spray application one to two times, after a shorter flash-off time.
- To prevent spraying shadows the material is sprayed on in cross patterns.
- After use, hold the spray can with the nozzle down and empty it, until only propellant exits.
- Dispose of the empty spray cans as recyclable material.



### Cleaning

- Splashes and paint mist can be removed immediately with gasoline.
- Dried stone chip protection can only be removed with D or R thinner. Be careful with fresh paint.

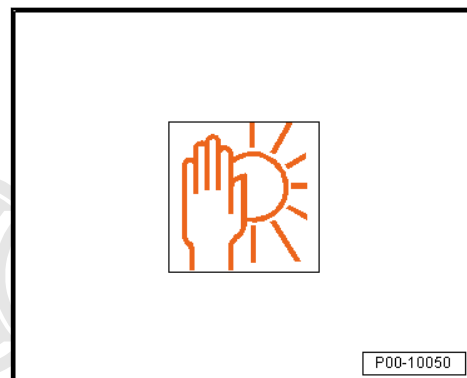


## 4.13.3 Stone Chip Protection AKR 311 KD1 10

## Storage

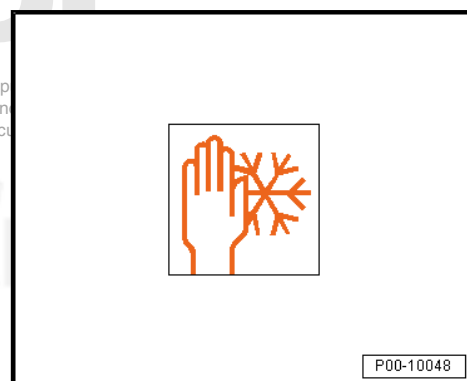
The guaranteed shelf life for pre-filled spray cans only is 48 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Storage Conditions

- ◆ The recommended storage temperature is +20 °C (68 °F).
- ◆ The temperature must not fall below +5 °C (41 °F).



## VOC value

Delivery Viscosity	Thixotropic
Flashpoint:	Flame-resistant
VOC value: 2004/42/IIB (e) (840) 130	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC-value of this product in ready-to-use form is a maximum of 130 g (4.6 oz)/l.

## Product Description

### Condition

- The Stone Chip Protection AKR 311 KD1 10 may not be applied to PVB, acid-hardening, adhesive primers.

Stone Chip Protection AKR 311 KD1 10 (black) is a water-soluble stone chip protection.



### Properties

- ◆ High elasticity
- ◆ Can be painted over with all top coats
- ◆ Particularly suitable for parts of passenger and commercial vehicles which are subject to gravel impact, such as front sections and door sill panels.



### Suitable base surfaces

- ◆ Well sanded factory paint or old paint, including thermoplastic coatings
- ◆ Surfaces treated with primer or filler

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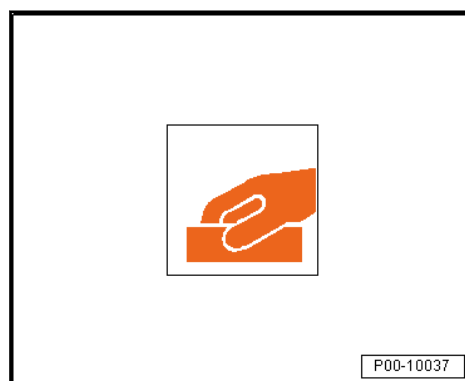
### Cleaning

- Carefully clean the base surfaces using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



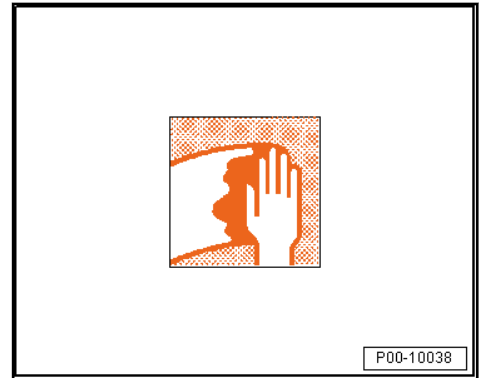
### Sand

- Sand the base surfaces.



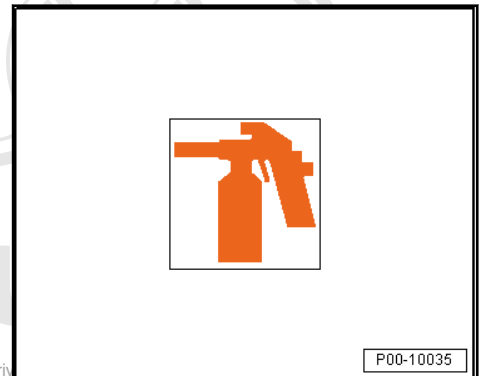
## Cleaning

- Use a suitable cleaning agent before reworking to ensure a clean and residue-free surface.



## Spray device

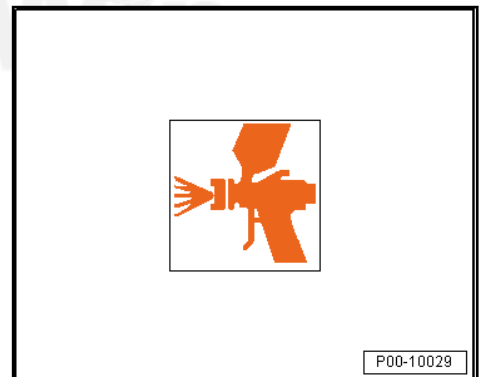
Underbody spray gun with thread for disposable cans.



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If a finer surface is desired, the Stone Impact Protection can be applied with a pressure feed spray gun according to the appropriate thinning.

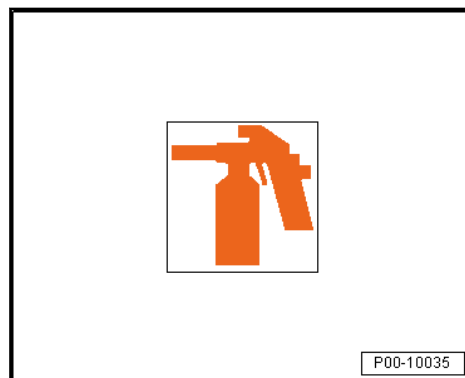
Can be thinned with Purified Water LVW 010 000 A5.





### Spray application

- Perform the high-pressure spraying application type.



### Processing viscosity

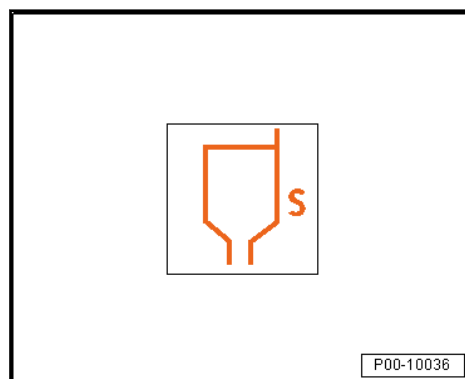
- Adjust the spray settings according to the manufacturer information, 3 - 4 bar (43.51 - 58.02 psi).

Processing viscosity 4 mm at +20 °C (68 °F), DIN 53211.

Condition

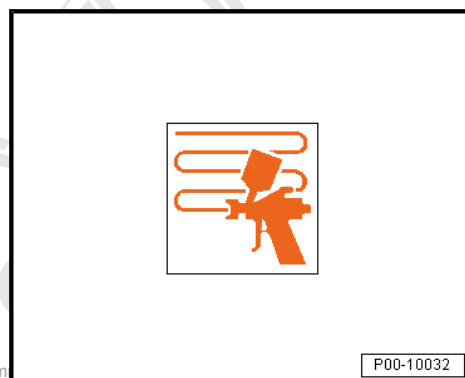
- Do not thin during high-pressure spraying procedure.

The delivery viscosity is the same as the processing viscosity.



### Spray application

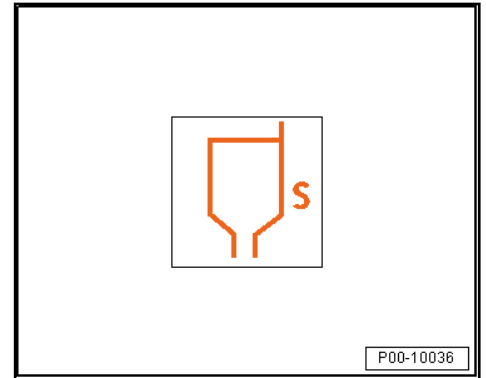
- Perform the application type coat.



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### Processing viscosity

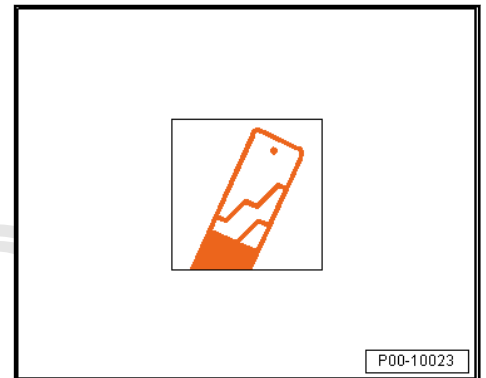
- Pay attention to the processing viscosity of 4 mm gravity feed spray gun “Compliant”, depending on the addition of purified water LVW 010 000 A5.



### Thinner additive

#### Condition

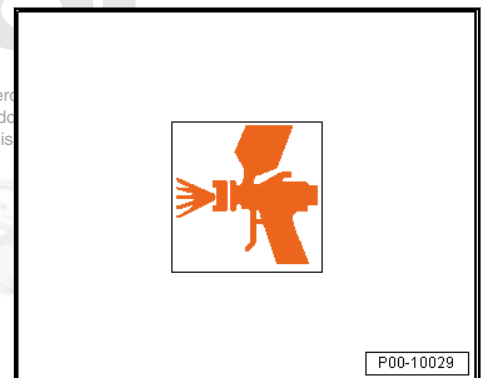
- Use a measuring stick to mix when pouring in the thinner.
- Adding 10% thinner at +20 °C (68 °F) material temperature.



### Washer nozzle and spray pressure

- Adjust the washer nozzle according to manufacturer tolerances:

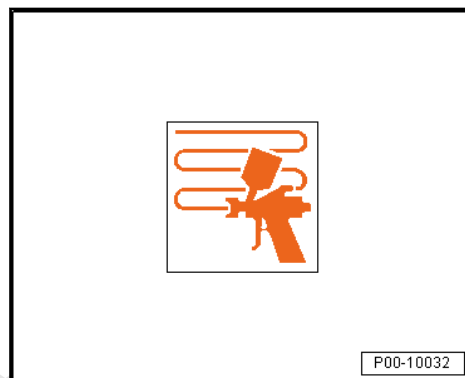
	Spray nozzle	Spraying pressure
Compliant	1.5 - 2.0	2.0 to 2.5 bar (29.01 to 36.26 psi)



### Spray application

- Apply two to three coats.

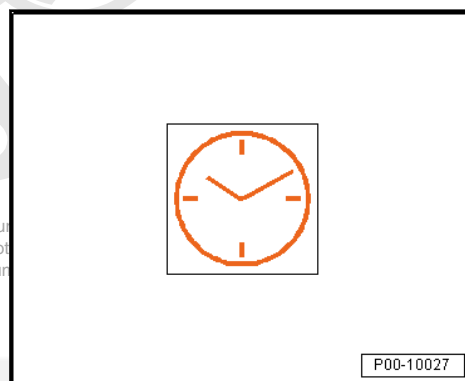
The recommended dry layer thickness is between 150 and 300 µm.



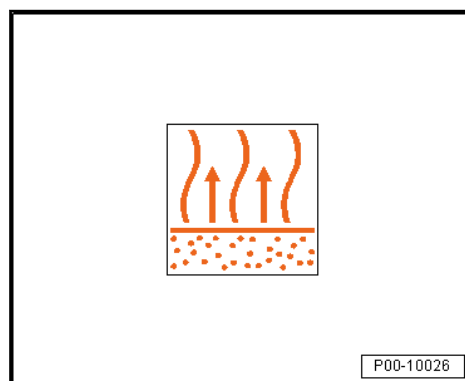
### Drying

Air dry at +20 °C (68 °F) room temperature for 2 to 2.5 hours to 150 µm and overnight to 300 µm

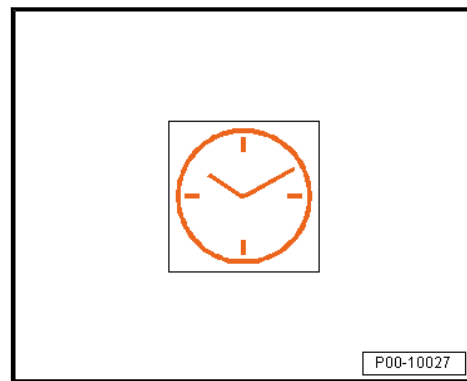
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The final flash-off time with forced drying is a minimum of 35 to 40 minutes.



Forced drying at +60 °C (140 °F) object temperature for 30 minutes to 150 and 300 µm

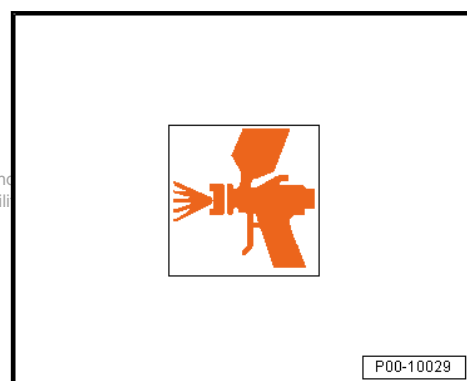


### Reworking

Can be painted over with:

- ◆ Water-based base paint and two-part HS clear coat
- ◆ Two-Part HS Top Coat

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## 4.13.4 Underbody Protection Wax D 316 D38 A2

### Condition

- Do not spray onto the steering, engine, drive axle, exhaust system, catalytic converter and brake systems. Blow out the USB spray gun immediately after use and then rinse it with Plastic Cleaner D 195 850 A1.
- If the spray gun becomes blocked, the can may burst. Pay attention to the gun owner's manual.

### Characteristics

Color	Transparent light beige
Odor	Mild odor
Consistency	Fluid, lightly thixotropic
Solid matter content	47%
Heat resistance of the dry film	Greater than 100 °C (212 °F)
Processing temperature	10 °C to 25 °C (50 °F to 77 °F)
Application temperature short term, up to one hour	25 °C to 80 °C (77 °F to 176 °F) +100 °C (212 °F)

## Product Description

Underbody Protection Wax D 316 D38 A2 is a solvent-containing anti-corrosion agent based on wax and lanolin with polymer and rust-protection additives.

This results in a high viscosity and a high abrasion resistance for wax. The underbody protection wax seeps into the pores of the PVC coating, pushing out moisture and closing the pores to produce a waterproof, highly adhesive and firm coating.

After drying the underbody protection wax forms a light beige, transparent, non-sticking, waterproof film.

The underbody protection wax meets TÜV requirements because of its transparency. The underbody remains controllable.

The dry film has good adhesion and corrosion protection properties and is very durable due to its toughness and resistance.

---

## Application

D 316 D38 A2 is mostly used on the underbody, especially for treatment and maintenance of all protective coats such as PVC, PVC/wax/bitumen/rubber/resin based materials.

The underbody protection wax can also be used to treat chassis parts such as axles, suspensions and springs. These components become gray with age and are often the first to be affected by rust. The treatment refreshes the color which considerably improves the optical appearance. At the same time the parts are protected against corrosion.

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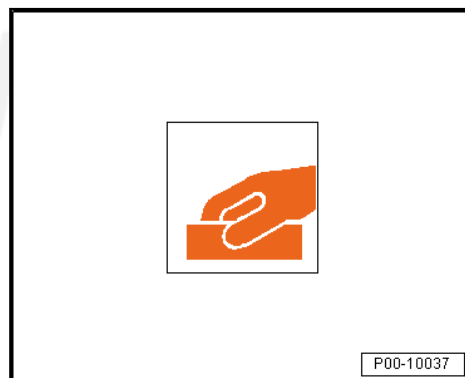
## Sand

### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet.
  - Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.
- 

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- Remove rust.
- Rust must be taken into account for older vehicles. Rust should be removed with a wire brush.



### Cleaning

- Thoroughly clean the areas to be treated with underbody protection wax D 316 D38 A2.

### Condition

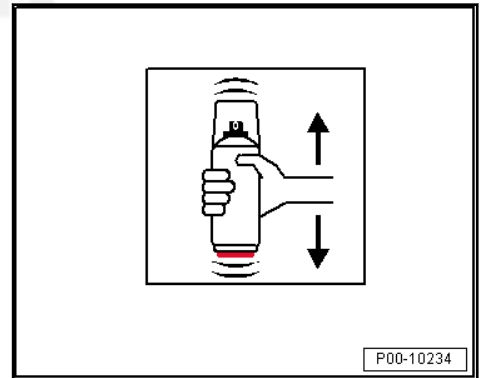
- The surfaces must be dry, free of grease, dirt and dust.
- The wax underbody protection must only be applied to dry surfaces.



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### Spray can

- The spray can must be shaken up before processing.
- ◆ Recommended wet layer thickness 200 µm
- ◆ Processing air pressure approximately 3 - 5 bar (43.51 - 72.52 psi)



### Spray application

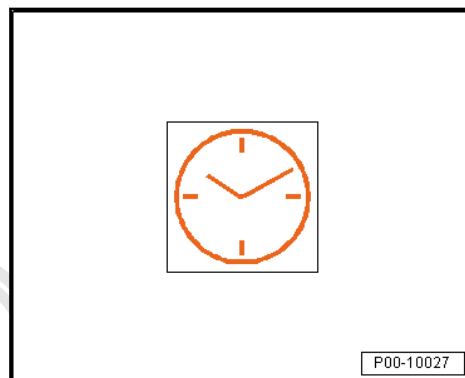
- Before processing starts, cover the vehicle especially at the windows.
- The wax underbody protection can be applied to vertical surfaces in one step. To prevent a spraying shadow, it is advisable to spray with cross coats.



## Drying

After drying overnight, the vehicle can be used again.

Between 24 and 48 hours are required for final drying.



An underbody protection spray gun is used when processing with the one-liter can.

The wax underbody protection can also be used with a pressure feed spray gun if the Venturi hooked probe 16139 SATA is used. Ideal processing pressure 3 - 4 bar (43.51 - 58.02 psi).

A 750 mm flexible guide hose enables the operator to guide the hook with the 7 mm Venturi nozzle with ease.



## Cleaning

- Remove splashes and spray mist with gasoline or Plastic Cleaner D 195 850 A1.
- ◆ Splashes and spray mist can also be removed using test fuel or petroleum
- ◆ Larger surfaces can also be cleaned with a steam cleaner.
- ◆ For this reason an underbody that has been treated with underbody protection wax cannot be cleaned with steam cleaning devices unless it is to remove the old layer before new treatment can begin.



### 4.13.5 Underbody Protection, Black D 314 D39 A3

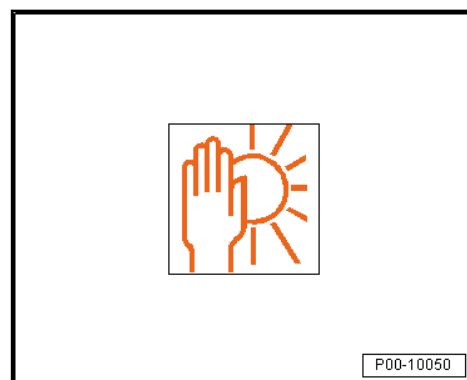
## Storage

Frost is not a problem. Consistently high temperatures reduce the shelf life.

After exceeding the expiration date, it is possible that it needs to be shaken up more thoroughly because Underbody Protection, Black D 314 D39 A3 becomes thicker with time and should be minimally thinned. The drying time also prolongs.

The underbody protection must no longer be used once the material is inhomogeneous after stirring.

If a film forms, remove the film; do not stir it in.



## Characteristics

Solid content	70% weight
VOC value	Less than 400 g (14.1 oz)/l
Dust dry*	20 to 30 minutes
Firm coating *	One to two hours
Dried *	Eight hours
Hardened*	Three days
* the values are very much dependent on layer thicknesses, and are hardly dependent on temperature. Air circulation helps. Applying heat will result in the opposite.	

## Product Description

This underbody protection, black, features active corrosion protection, high adhesion strength, good edge protection, optimal base surface wetting, high opacity, easy processability, among other things.

It can also be used successfully on surfaces with a rust film or on surfaces on which the rust has been removed by hand. They will be penetrated. Continued rusting is prevented.

In its delivery form, it is painted and rolled on. It can be sprayed on with every system after adding thinner.

Can be used between 5 to 30 °C (41 to 86 °F); one-part.

Air-drying.

Do not use heat-forced drying.

Dust dry after 30 minutes.

It can be reworked on its own at any time without having to sand it down.

It can be used directly on steel, aluminum, stainless steel, galvanized panels as well as other metals.

Especially suitable for mixed-material design, adheres well to workable old coatings and base coatings.

Rusty surfaces or parts must carefully have the rust removed (by hand) so that the base surface is workable.



For rough surfaces, specifically ensure an adequate layer thickness.

---

## Application

Underbody Protection D 314 D39 A3 is tolerant of the base surface and processing. Therefore it is particularly well suited for repair work.

This high solid material contains solvents and is VOC compliant. It must not be diluted with water.

Stir the can contents well before using. This is important, just because it is not so evident with the "black" color.

Paint/roll on in its delivery form.

For spraying, thin 0 to 10% according to the procedure.

### Condition

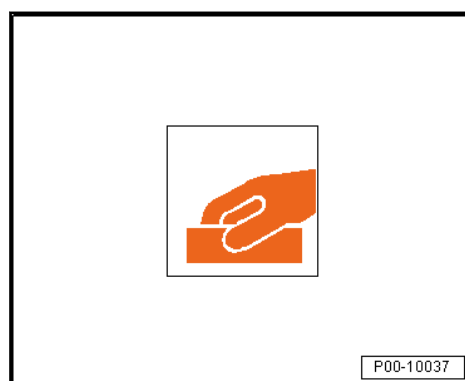
- Pay attention to the warning messages on the label or the safety data sheet, for example keeping it away from ignition sources, venting, etc.
- 

## Sand

### Condition

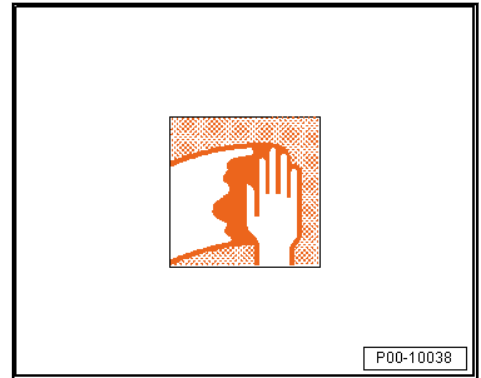
- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet.
  - Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.
- 

- Remove rust.
- Rust must be taken into account for older vehicles. Rust should be removed with a wire brush.



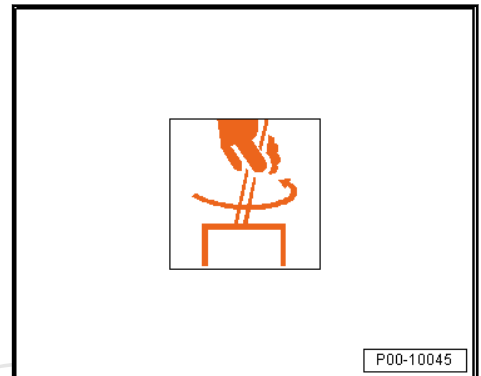
## Cleaning

- Thoroughly clean the areas to be treated with underbody protection wax beforehand.



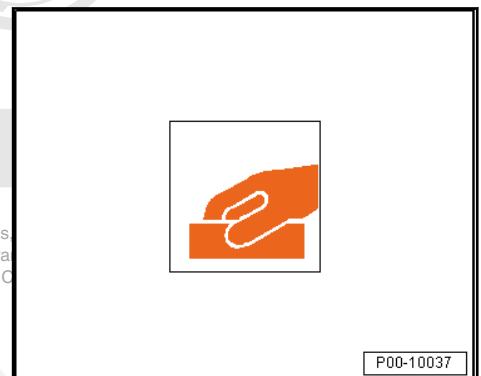
## Can contents

- Stir the can contents well before using. This is important, just because it is not so evident with the “black” color.



## Processing

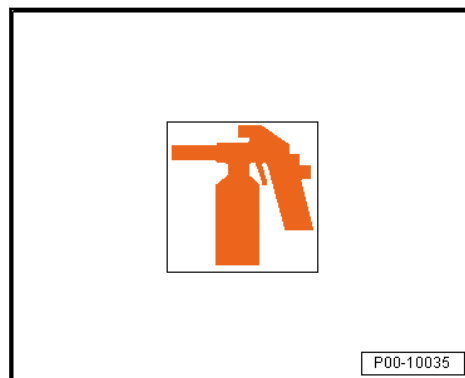
- If necessary, prepare the critical areas or rework them again at any time.



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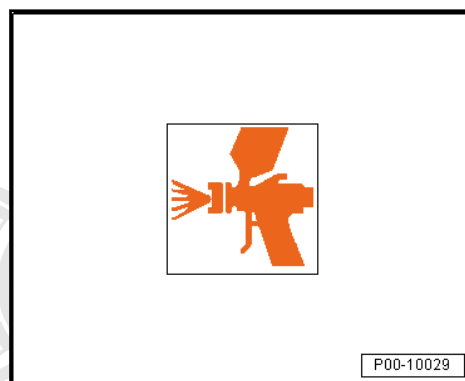
## Underbody Protection

- If necessary, tape off the surfaces that are not going to be coated.
- Apply the underbody protection.
- Make sure that the critical areas, for example angles, edges, holes, weld seams, are given enough of the material.
- The underbody protection cannot be sanded until a long time after applying. Cut off any undesired drip formations with a sharp knife.



## Reworking

- After drying, it can be painted over with one or two-part paints if desired.
- The solvent, also in the water-based paint, lightly softens the surface so that a perfect bond can form. If in doubt, perform preliminary tests.



## Cleaning

Standard workshop cleaners are suitable.



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## 4.14 Sealant Materials

⇒ [“4.14.1 Polyurethane Adhesive Sealant”, page 287](#)

⇒ [“4.14.2 Seal”, page 289](#)

⇒ [“4.14.3 Sprayable Sealant”, page 290](#)

⇒ [“4.14.4 Sealant”, page 292](#)

⇒ [“4.14.5 Sealing Band, Malleable”, page 295](#)

⇒ [“4.14.6 Adhesive Sealant”, page 296](#)

### 4.14.1 Polyurethane Adhesive Sealant

#### Product Description

Polyurethane Adhesive AKD 476 KD5 05 is a one-part adhesive/sealing paste on a polyurethane basis which forms a rubbery/elastic adhesive sealant when it hardens.

Skin formation and hardening time depend on the humidity and the temperature.

The hardening time is also affected by the joint depth.

These times can be shortened by raising the temperature and humidity. Lower temperature and humidity levels delay the hardening.

#### Properties

Polyurethane Adhesive AKD 476 KD5 05 has the following properties:

- ◆ Can be painted over, even wet-on-wet
- ◆ Very fast drying
- ◆ Levels out slightly on the surface
- ◆ Excellent elasticity
- ◆ High resistance to aging
- ◆ Can be sanded
- ◆ Can be spread

#### Application

Polyurethane Adhesive AKD 476 KD5 05 is used for elastic sealing/adhesion, for sealing welds and sealing very narrow joints where its lack of stability in the areas is of no consequence.

- ◆ Bodywork and vehicle assembly
- ◆ Vehicle add-ons

Especially if the sealant joints are to be painted over. To avoid yellowing or cracking, the sealant should always be painted over when used on the outside of the vehicle.

The use of polyurethane adhesive means that mechanical fixing methods such as bolting, welding and clamping can be partially omitted. Until the adhesive/sealant material has hardened, the parts should be temporarily fixed in position with adhesive tapes and spacers. Polyurethane adhesive has the major advantage that it can be used as an adhesive and a sealant. The polyurethane adhesive is suitable only to a limited extent for some adhesive purposes in vehicle construction.

#### Adhesive properties

Good adhesion without additional primer on primed and painted metal bodywork, on wood, untreated, glazed and painted, some

plastics such as PBTP, polyurethane hard foam, GF polyester and others.

Depending on the base surface it may be necessary to use a primer as a bonding agent to ensure that polyurethane adhesive attains its optimum adhesion.

On account of the large number of primers, paints and differing plastic surfaces etc. we recommend conducting an application-specific test beforehand. Careful cleaning on plastic and metal surfaces with a suitable solvent often results in significantly better adhesion.

## Processing

### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet. Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.

The adhesion surfaces must be dry, free of oil, dust, grease and any other impurities.

Cleaners A, D and Cleaner for Plastic Repairs D 195 850 A1 are suitable for cleaning.

The application of polyurethane adhesive from a 310 ml nozzle cartridge is done with manual or compressed air spray guns, from 310 ml foil cartridges using the appropriate Cartridge Gun - V.A.G. 1628- or Compressed Air Gun - V.A.G. 1721- . A pressure of 2 to 5 bar (29.01 to 72.52 psi) is required for compressed air application.

Low material temperatures of the sealant increase its viscosity. This results in a lower spraying rate. To avoid this, bring the sealant to the correct temperature before processing begins.

If the base surface is too cold, condensation can form if the temperature is lower than the dew point. Avoid by bringing to the correct temperature beforehand.

After applying, the polyurethane adhesive sealant can be smoothed using a jointer or a scraper that has been moistened with deionized water. If the edges of the joint are masked with tape, simply pull off the tape with a scraper.

To clean tools used with polyurethane adhesive sealant, it is recommended to use Cleaner for Plastic Repairs D 195 850 A1.

## Painting procedure

Polyurethane adhesive sealant can be painted wet-on-wet with one-part and two-part repair paint on an alkyd resin-acrylic basis. Nitro repair paints from spray cans and paints, paint thinners and catalysts with alcohol content are not compatible with polyurethane adhesive sealant. No hardening will happen.

Corrosion protection primers may only be applied to hardened polyurethane adhesive sealant as hardening is strongly hindered in most cases by steam diffusion.

If drying is accelerated by the use of a paint drying oven or an IR dryer radiator, a pre-reaction/waiting time of at least 30 minutes must be adhered to. Only then is the over-painted polyurethane adhesive sealant to be warmed. The maximum permissible temperature for non-hardened sealant material is +90 °C (194 °F) for one hour.

## Characteristics

Colors	White, gray, black
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Odor	Classified by aroma (odorless in hardened condition)
Consistency	Paste, can be applied with brush or spatula
Stability	Levels out slightly on the surface
Hardening type	Moist hardening
Film formation type, standard climate conditions DIN 50014	15 to 45 minutes 23 °C (73.4 °F) at 50% relative humidity
Hardening speed, standard climate conditions DIN 50014	approximately 5.5 mm/24 h 23 °C (73.4 °F) at 50% relative humidity
Volume change	-6 %
Processing temperature	+5 °C to +35 °C (41 °F to 95 °F)
Application temperature limited to 24 hours short-term up to one hour	-40 °C to +70 °C (-40 °F to 158 °F) +80 °C (176 °F) +120 °C (248 °F)

## 4.14.2 Seal

### Product Description

Seal AKD 497 010 04 R10 is a solvent-free, plastic-like, self-adhesive, multi-purpose sealing strip with a synthetic rubber basis. It provides good protection against corrosion and can be painted over with all commercially available oil and synthetic resin-based paints.

The seal has very good waterproof properties and has a long lifetime.

The seal adheres to all clean and dry material surfaces and has been shown to be very highly compatible with the most different materials.

Due to its properties, the Seal AKD 497 010 04 R10 is used as an intermediate seal for overlaps. The parts to be sealed off must also be secured mechanically, for example with clamps, bolts, rivets or similar.

### Application

Seal AKD 497 010 04 R10 is used as a spacer and as a sealant in the following areas:

- ◆ In the metal fabrication industry, for example, for overlapping steel, aluminum, glass and plastic constructions
- ◆ As protection against contact corrosion between steel and non-ferrous metals
- ◆ In the automobile, truck and RV building industries for sealing metallic, wooden and plastic parts

### Processing

#### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet. Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.

The joint parts must be dry, free of oil, grease, dust and all other anti-adhesive substances, such as releasing agents, and dirt.



Small quantities of oils and greases can be absorbed by the seal band.

Seal AKD 497 010 04 R10 is rolled out in the appropriate length from the roll and placed onto the surfaces to be sealed and pressed on. It is advisable not to remove the protective paper or protective film when rolling out the strip, rather only after placing and pressing the strip down. This prevents unintentional lengthening of the strip. The counterpart can then be placed and fixed in position.

#### Cleaning

Extruding sealant will just be dabbed with a piece of seal.

#### Characteristics

Colors	White/black
Odor	None
Consistency	Plastic-like
Solid matter content	100 %
Adhesive force	Low
Painting compatibility	Given
Application temperature short term, up to one hour	-40 °C to 80 °C (-40 °F to 176 °F) 150 °C (302 °F)

### 4.14.3 Sprayable Sealant

#### Product Description

Sprayable Sealant D 476 KD1/KD2 M2 is a spray-on sealant with a MS polymer base. It hardens into a rubber-elastic sealant with good abrasion resistance by absorbing atmospheric moisture.

Skin formation and hardening time depend on the humidity and the temperature.

The hardening time is also affected by the layer thickness.

These times can be shortened by raising the temperature and humidity. Lower temperature and humidity levels delay the hardening.

#### Properties

- ◆ Sealant and seam sealant in one product
- ◆ High stability
- ◆ Can be sprayed and brushed
- ◆ Can be painted over with conventional or water-based paints up to three days after applying
- ◆ Adheres to many materials without glass-/paint primer
- ◆ High initial strength
- ◆ Can be spot welded
- ◆ Silicone-free
- ◆ No strong odor
- ◆ Isocyanate-free
- ◆ Quick drying
- ◆ UV resistant
- ◆ High resistance to aging

◆ Sound-dampening properties

### Application

Sprayable Sealant D 476 KD1/KD2 M2 is used to seal welds during vehicle repair on vehicles that have been sprayed at the factory, for example in the engine, luggage, and passenger compartment areas. At the same time, each desired weld can be reached by using application tools such as Telescope Spray Gun , Multi Gun , Press Gun or Pneumatic Cartridge Gun - V.A.G. 1761/1- .

Sealant, sprayable, is used as a surface coating to repair or supplement PVC underbody coating or stone chip protection.

### Base, preparation

The adhesion surfaces must be dry, free of oil, dust, grease and any other contaminants. Cleaner FL is suitable to clean with.

Adhesion is improved if the contact surfaces are roughened with a sanding pad.

If the spray-on sealant is painted after fully drying, then adhere to the paint preliminary work analog to the plastic preliminary work.

### Processing

#### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet. Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.
- Body areas and adhesion surfaces that are to be sealed must be insulated with a two-part filler before applying the material.

Application of the Sealant, Spray-On D 476 KD1/KD2 M2 from 310 ml aluminum cartridges can only be done by using Telescope Gun , Multi Gun , Press Gun or Compressed Air Gun - V.A.G. 1761/1- . These application devices make it possible to apply the spray-on sealant as a strip of material/sealant bead or to spray it on by using the dual-circuit air system.

Spray-on sealant can be both sprayed and brushed on. This means that it is possible to imitate textured bonds and brushed structures.

The sealed seams can be painted over as early as 15 to 30 minutes.

The corresponding settings on the application devices enable the operator to imitate all textures specified by the manufacturer quickly and conveniently. The spraying distance can be used to vary the width and limit of the bond. Refer to the operating instructions for details on handling and setting the spray gun.

It is recommended to remove any unhardened spray-on sealant from the tools using cleaner FL. Hardened spray-on sealant can only be removed mechanically.

### Painting procedure

The Sealant, Spray-On D 476 KD1/KD2 M2 can be painted over with one-part and two-part repair paint and even those containing alcohol as a solvent.

Painting over quickly does not prevent complete hardening. It is, however, delayed. Do not wait longer than three days before painting.

Before sealing or coating, phosphate and epoxy resin primers are particularly suitable for corrosion protection. It is imperative that the primers are dry before a sealant or coating is applied.

If the body area to be painted after an accident repair is still to be coated with filler, filler primer or spray-on filler, these materials must be applied before sealing or coating with Spray-On Sealant.

If a filler still needs to be applied after sealing or coating with Spray-On Sealant, then the spray-on sealant should be at least six hours old and a filler suitable for use with plastic.

### Incompatibility

The Sealant, Spray-On D 476 KD1/KD2 M2 is not compatible with fresh one-part polyurethane material. Polyurethane products must be solidified before they are sprayed with the spray-on sealant.

The spray-on sealant should not be treated with aromatic solvent systems. As a result, it can partially dissolve or swell the spray-on sealant.

### Characteristics

Colors	Gray, black
Odor	Barely perceptible
Consistency	Pasty
Density	1.6 g (0.1 oz)/cm <sup>3</sup>
Stability	Excellent
Hardening type	Moist hardening
Film formation type, standard climate conditions DIN 50014	8 to 20 minutes, at +23 °C (73.4 °F) and a relative humidity of 50%
Drying, standard climate conditions DIN 50014	At +23 °C (73.4 °F) and a relative humidity of 50% 4 mm/24 hours 6 mm/48 hours
Shore A hardness	65
Painting compatibility	Can be painted after 20 minutes with one-part and two-part paints
Adhesive properties	Bare sheet metal galvanized metal EC paint top coat paint metallic paint PVC underbody protective agent GFK PP/EPDM (testing recommended)
Chemical resistance	To light and weather to PVC softening to fuel (short-term)

## 4.14.4 Sealant

### Product Description

- ♦ Sealant D 476 KD3/KD4 M2 is a one-part sealant on a MS polymer base, also called SMP, silane-modified polymer. It will harden to an elastic sealant due to humidity.

- ◆ The sealant is free of solvents, isocyanate, silicones and PVC, and it is odor free.

Skin formation and hardening time depend on the humidity and the temperature.

The hardening time is affected by the layer thickness.

These times can be shortened by raising the temperature and humidity. Lower temperature and humidity levels delay the hardening.

### Properties

- ◆ Sealant and adhesive in one product for weld and joint sealing as well as elastic bonding.
- ◆ High stability
- ◆ Can be sprayed and brushed
- ◆ Standard seam seal
- ◆ Can be brushed and spread
- ◆ Can be painted over with one-part/two-part conventional or one-part/two-part water-based paints up to three days after applying
- ◆ Adheres to many materials without glass-/paint primer
- ◆ Application temperature -30 to +100 °C (-22 to 212 °F)
- ◆ Film formation type, eight minutes standard climate conditions DIN 50014
- ◆ Can be spot welded
- ◆ High initial strength
- ◆ Fast hardening
- ◆ UV resistant
- ◆ High resistance to aging
- ◆ Sound-dampening properties

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### Application

Sealant D 476 KD3/KD4 M2 is used on vehicles for sealing off welds, joints and butts to protect against corrosion in the event of repair. It is applied visible and non-visible at the factory, and is also used for repairing PVC seam seals, in the engine area, doors, luggage compartment and the vehicle interior.

Application tools Manual Cartridge Gun - V.A.G 1628/1- , Multi-Press Gun - V.A.G. 1761/1- or Compressed Air Gun - VAS 6648- can be used to apply any desired seam seal.

Sealant is an excellent adhesive and sealant between spot welded flanges to prevent corrosion.

### Pretreatment

The adhesion surfaces must be dry, free of oil, dust, grease and any other contaminants. Adhesion is improved if the contact surfaces are roughened with a sanding pad.

Pay attention to the cleaning process of the contact surfaces to be cleaned:

- ◆ Clean the area to be bonded with Cleaner for Plastic Repairs D 195 850 A1, then lightly sand it, for example with a sanding pad and then clean again.

If sealant is painted after fully drying, then adhere to the paint preliminary work analog to the plastic preliminary work.



## Processing

### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet. Even for products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.
- Body areas and adhesion surfaces that are to be sealed must be insulated with a two-part filler before applying the material.

Application of adhesive and sealant from 310 ml aluminum cartridges can be done by using the following tools Manual Cartridge Gun - V.A.G 1628/1- , Multi Press Gun - V.A.G. 1761/1- or Compressed Air Gun - VAS 6648- .

By using these application tools it is possible to apply sealant as a material bead/sealant bead. Spraying is not possible. Sealant can be both spread and brushed on. This means that it is possible to imitate textured bonds and brushed structures.

The sealed seams can be painted over as early as 15 to 30 minutes.

To clean tools from sealants which are not hardened, it is recommended to use Cleaner for Plastic Repairs D 195 850 A1. Hardened sealant can only be removed mechanically.

### Painting procedure

The Sealant D 476 KD3/KD4 M2 can be painted over with one-part and two-part repair paint and even those containing alcohol as a solvent.

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Painting over quickly does not prevent complete hardening. It is, however, delayed. Do not wait longer than three days before painting.

Before sealing or coating, phosphate and epoxy resin primers are particularly suitable for corrosion protection. It is imperative that the primers are dry before a sealant or coating is applied.

If the body area to be painted after an accident repair is still to be coated with filler, filler primer or spray-on filler, these materials must be applied before sealing or coating with Spray-On Sealant.

If a filler still needs to be applied after sealing or coating with sealant, then the sealant should be at least six hours old and a filler suitable for use with plastic.

### Incompatibility

The Sealant D 476 KD3/KD4 M2 is not compatible with fresh one-part polyurethane material. Polyurethane products must be fully hardened before they are sprayed with the sealant.

The sealant should not be treated with aromatic solvent systems. Sealant and adhesive may dissolve or swell because of this.

### Characteristics

Color	Gray, black
Odor	odorless
Consistency	Pasty
Density	1.5 g (0.1 oz)/cm <sup>3</sup>
Elongation, DIN 53504	250%
Tensile strength DIN 53504	2.5 MPa

Stability	Excellent
Hardening type	Moist hardening
Film formation type, standard climate conditions DIN 50014	at +23 °C (73.4 °F) and a relative humidity of 50% eight minutes
Drying, standard climate conditions DIN 50014	At +23 °C (73.4 °F) and a relative humidity of 50% 3 mm/24 hours 6 mm/48 hours
Shore A hardness	50
Painting compatibility	Can be painted after 20 minutes with one-part and two-part paints
Adhesive properties	Bare sheet metal galvanized metal EC paint top coat paint metallic paint PVC underbody protective agent GFK PP/EPDM (testing recommended)
Chemical resistance	To light and weather to PVC softening to fuel (short-term)
Processing temperature	+5 °C to +40 °C (41 °F to 104 °F)
Application temperature short term, up to one hour	-30 °C to +100 °C (-22 °F to 212 °F) +110 °C (230 °F)

#### 4.14.5 Sealing Band, Malleable

##### Product Description

Malleable Sealing Band D 486 020 A5 is a solvent-free, plastic-like, self-adhesive, multi-purpose sealing strip with a synthetic rubber basis.

It does not contain any corroding components and can be painted over with commercially available oil and synthetic resin paints. The malleable sealing band has very good waterproof properties and has a long lifetime.

The malleable sealing band adheres to all clean and dry material surfaces and has been shown to be very highly compatible with the most different materials.

Its properties mean that malleable sealant band can be used for sealing overlaps and as an intermediate sealant. The components to be sealed must first be mechanically fixed in place with clamps, bolts, rivets etc.

##### Application

Malleable Sealing Band D 486 020 A5 can be used anywhere to form the seal between metal, wood or plastic. The malleable sealing band has successful applications in automobile and vehicle construction, in the area of fenders, luggage compartment floor surfaces, cable ducts.

##### Processing

##### Condition

- Before starting to apply, it is necessary to read the safety measures and advice in the safety data sheet. Even for

products which are not required to be labeled by law, the usual safety measures must be observed for chemical emissions.

The joint parts must be dry, free of oil, grease, dust and all other anti-adhesive substances, such as releasing agents, and dirt. Small quantities of oils and greases can be absorbed by the sealing band.

Malleable sealing band is rolled out in the appropriate length from the roll and placed onto the surfaces to be sealed and pressed on. It is advisable not to remove the protective paper or protective film when rolling out the strip, rather only after placing and pressing the strip down. This prevents unintentional lengthening of the strip. The counterpart can then be placed and fixed in position.

### Cleaning

Excess sealant is just dabbed off with a piece of sealing tape.

### Characteristics

Color	Dark gray
Odor	None
Consistency	Plastic-like
Solid matter content	100 %
Adhesive force	Low
Painting compatibility	Given
Application temperature short term, up to one hour	+25 °C to +80 °C (77 °F to 176 °F) +150 °C (302 °F)

## 4.14.6 Adhesive Sealant

### Product Description

The Adhesive Sealant D 511 500 A2 is used during vehicle repairs as a seal during body repair work on primed surfaces, for example paint structure according to paint manual.

Adhesive Sealant is used for visible and non-visible seams and butt joints, as well as to rework PVC seam seals.

### Properties

- ◆ High adhesive properties on primed and painted metal, aluminum and all conventional plastics used in vehicles.
- ◆ Can be painted immediately
- ◆ Can be dried with an IR dryer
- ◆ Dries quickly under the paint
- ◆ Does not form bubbles
- ◆ Excellent corrosion protection
- ◆ Solvent-free and contains no isocyanate and PVC

### Processing

Adhesive Sealant D 511 500 A2 is applied to seal welds and dents with the Compressed Air Gun - V.A.G. 5237- or the Manual Cartridge Gun - V.A.G 1628- and then, depending on its appearance, is left as a sealing ridge or evened with a brush or scraper. Observe the hardening time of less than 10 minutes.

After a film has formed, the adhesive sealant can still be smoothed further with a moist scraper.

Adhesive sealant can be coated with all repair paints. Painting must occur within 48 hours of the adhesive sealant being applied. Drying the paint with an infra-red dryer does not hinder the hardening of the sealant.

#### Characteristics

Color	White, gray, black
Volume difference after hardening	-3%
Film formation	± 20 minutes
Adhesion-free	Four hours at +20 °C (68 °F)
Hardening speed	3 to 4 mm/4 hours at +20 °C (68 °F)
Solvent content	0 %
Isocyanate content	0 %
Temperature resistance	-40 °C to +35 °C (-40 °F to 95 °F)
Application temperature	+5 °C to +35 °C (41 °F to 95 °F)
UV and weather resistance	Excellent

## 4.15 Cleaning Agent

⇒ [“4.15.1 Pre-Treatment Towel”, page 297](#)

⇒ [“4.15.2 Cleaner for Plastic Repairs”, page 299](#)

⇒ [“4.15.3 Silicone Remover, Diluted”, page 300](#)

⇒ [“4.15.4 Silicone Remover, Regular and Long”, page 301](#)

⇒ [“4.15.5 Antistatic Plastic Cleaner”, page 302](#)

### 4.15.1 Pre-Treatment Towel

#### VOC value

VOC value: 2004/42/IIB(a II) (200) 200	The EU limit for this product (product category IIB.a) in ready-to-use form is a maximum of 200 g (7.1 oz)/l volatile organic compounds. The VOC-value of this product in ready-to-use form is a maximum of 200 g (7.1 oz)/l.
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#### Product

Pre-treatment towels D 043 100 M5 for uncoated metal, especially before using two-part HS speed filler LVM 016 ... A2/A4.

Pre-treatment towels contain special, reactive substances.

Pre-treatment towels are easy to use and were developed to quickly pre-treat metal surfaces. They ensure excellent adhesion during the subsequent painting process and offer good corrosion protection.

- ◆ Suitable for smaller sanded-through areas.
- ◆ Quick and easy application.
- ◆ Has excellent adhesion and corrosion protection properties.
- ◆ Easy to apply. No other devices are required.
- ◆ Excellent yield. One towel can be used to pre-treat approximately 2 m (6.6 feet)<sup>2</sup>.

- ◆ Reduces the flash-off times by about 20 to 25 minutes compared to two-part wash primer.
- ◆ Chromate-free, water-based and easy to dispose of, with very low amount of solvents, less than 1.5%.

#### Application instructions

- ◆ Protect pre-treatment towels D 043 100 M5 from freezing. If towels are frozen, they will be damaged and cannot be used any longer.
- ◆ Wearing appropriate personal protective equipment during application is recommended: in addition to occupational protective clothing and safety goggles, rubber gloves are especially important.
- ◆ Painting over this product with a one-part primer, wash primer or polyester products is not recommended.
- ◆ Containers with towels in them must be sealed immediately after removing a fresh towel.
- ◆ For continued use, towels can be stored in a sealable plastic bag or container for a maximum of one working day. Used towels must not be placed back in the original container.
- ◆ If liquid is collecting at the bottom of the towel container, then roll the container horizontally, so that the liquid will be absorbed again.
- ◆ Dried up towels must be discarded because they cannot be used or moistened anymore.
- ◆ Water-based Pre-Treatment Towels D 043 100 M5 are free of chromate.
- ◆ Yield: 1 towel/2m (6.6 feet)<sup>2</sup>.

#### Use

##### Condition

- Uncoated steel panel, sanded and cleaned
- Galvanized steel panels or soft aluminum, sanded and cleaned.

Evenly and thoroughly wipe up with diagonal movements.

Make sure that the surface remains damp for at least one minute. Required to achieve an effective passivation of the metal.

Only apply to uncoated metal surfaces.

Do not use the same towel for different types of metal surfaces.

#### Mixing ratio



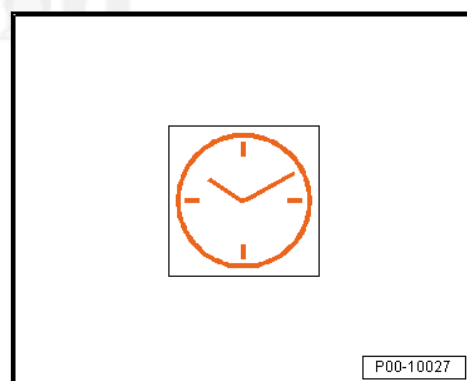
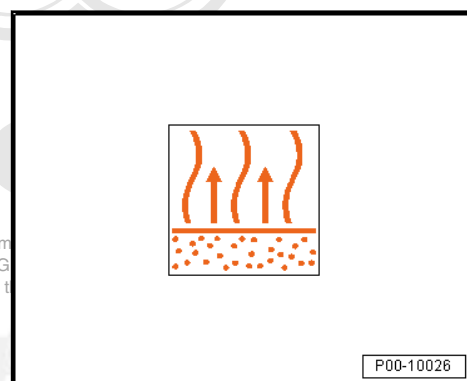
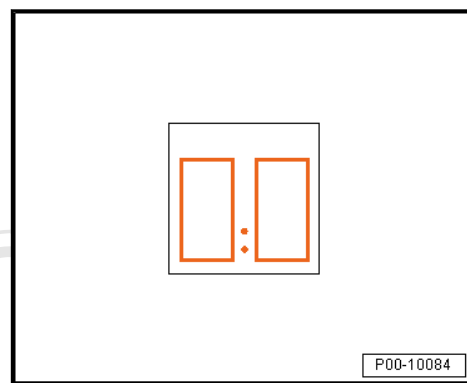
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Pre-treatment towels are ready to use.

### Drying

The surface must be dry.

Paint over within 15 minutes.



## 4.15.2 Cleaner for Plastic Repairs

### Description

Cleaner for Plastic Repairs D 195 850 A1 is a liquid universal cleaner and thinner with a non-aromatic, low n-hexane content gasoline base. The cleaner does not contain any chlorinated hydrocarbons. It does not affect paint during a short exposure time.

### Application

The Plastic Cleaner D 195 850 A1 is mostly used to degrease and clean base surfaces before the application of adhesives or sealants. Careful cleaning of the adhesion surfaces is essential for proper adhesion and includes the removal of dust, oil and grease.

Depending on the composition of the products listed above, the cleaner for plastic repairs can also be used to remove impurities and surplus amounts of these material as well as for use on various base surface protection materials.

In some cases, cleaner for plastic repairs is also suitable for use as a thinner for certain adhesives/sealants as coating compounds. Mind that these products are used without thinning un-

der normal conditions. Thinning is only suitable in some special processes or if a thinner consistency is desired.

Detailed information about which materials are suitable for cleaner for plastic repairs can be found in the data sheets of the respective products.

### Processing

Depending on the level of dirt present and the shape and size of the part, cleaner for plastic repairs can be applied and wiped off with either a brush or a cleaning cloth.

To avoid contamination of the content of the original container, the cleaner for plastic repairs should either be poured onto a pad or into another container, for example a metal can or similar.

Do not press firmly against the opening or turn the container upside-down. Only pour as much as needed for the cleaning process. Immediately close the original container.

The cleaned surfaces should be allowed to dry completely, approximately 2 - 10 minutes, depending on the circumstances, before the adhesive or sealant is applied. Blowing with compressed air can reduce the drying time, but in some cases the effect of cleaning can be negated by compressed air with an oil content. Base surfaces with open pores should be allowed to dry for at least 30 minutes before cleaning.

When cleaning cut material (for example when inserting permanently glazed vehicle windows) the processing guidelines of these products must be observed.

### Processing

Color	Water-bright, transparent
Odor	Gasoline

## 4.15.3 Silicone Remover, Diluted

### VOC value

Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/ IIB(a) (200) 200	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 200 g (7.1 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 200 g (7.1 oz)/l.

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### Product Description

Silicone Remover LSW 019 000 A5 is an unlabeled, watery cleaning agent that has a low concentration of organic solvents and special cleaning additives.

### Application

Before reworking the area of application further, clean sanded old or factory paint, primed, filled and sanded areas.

### Processing

- ◆ Apply silicone remover with a spray bottle or a clean fleece cloth.
- ◆ Dry the surface with a dry fleece cloth before the silicone remover evaporates.

- ◆ Let all cleaned surfaces dry before further processing or allow them to dry.
- ◆ Allow the cleaned surface to dry completely before further processing.
- ◆ Do not allow the sprayed-on silicone remover to dry on the surface.
- ◆ Silicone remover is not suitable for cleaning spray guns and equipment.
- ◆ Change used or dirty cloths in good time.
- ◆ Always use clean cloths.
- ◆ Repeat the cleaning procedure if the surface is very dirty.
- ◆ Silicone Remover LSW 019 000 A5 is not suitable for removing separating agent residue on UP-GF or other plastic surfaces.

#### 4.15.4 Silicone Remover, Regular and Long

##### VOC value

Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (a) (850) 770	The EU limit for this product (product category IIB.b) in ready-to-use form is a maximum of 850 g (30 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 770 g (27.2 oz)/l.

##### Product Description

Silicone Remover LVM 020 000 A5 is a fast-evaporating mixture.

Silicone Remover, Long LVM 020 100 A5 is a mixture made of slow-evaporating organic solvents.

Both are primarily used to remove any oil and grease residue.

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##### Application

Before reworking the area of application further, clean sanded old or factory paint, primed, filled and sanded areas.

##### Processing

- ◆ Apply silicone remover with a spray bottle or a clean fleece cloth.
- ◆ Dry the surface with a dry fleece cloth before the silicone remover evaporates.
- ◆ Let all cleaned surfaces dry before further processing or allow them to dry.
- ◆ Allow the cleaned surface to dry completely before further processing.
- ◆ Do not allow the sprayed-on silicone remover to dry on the surface.
- ◆ Silicone remover is not suitable for cleaning spray guns and equipment.
- ◆ Always use clean cloths.
- ◆ Change used or dirty cloths in good time.
- ◆ Repeat the cleaning procedure if the surface is very dirty.

## 4.15.5 Antistatic Plastic Cleaner

### Description

The usage and application instructions for the Antistatic Plastic Cleaner LVM 001 001 A2 are described in the appropriate base components.

Possible base components are:

- ◆ Refer to ⇒ Rep. Gr. 00 ; Bonding Agent .
- ◆ Refer to ⇒ Rep. Gr. 00 ; Two-Part Plastic Adhesive Filler .

## 4.16 Finishing Materials

⇒ **"4.16.1 Buffing Cloth, White", page 302**

### 4.16.1 Buffing Cloth, White

#### Product Description

Extremely soft cloth for sensitive, exacting polishing.

A combination of rayon and polyester fibers make it especially fluffy. The special spun bound construction prevents fraying and lint build-up.

Since it contains no streak-causing additives, the buffing cloth is ideal for preparing chrome, glass and interior components.

Size: 400 x 365 mm per cloth

#### Application areas

- ◆ Hand polishing
- ◆ Finishing work on exterior surfaces
- ◆ Interior cleaning

Delivery package: 275 fleece cloths, rolled up in a dispenser box (tear-off).

## 4.17 Spray Cans, SprayMax System

⇒ [“4.17.1 Using One-Part Clean Spray Cans, Warning Messages”, page 303](#)

⇒ [“4.17.2 Using Two-Part Spray Cans, Two-Part Acrylic Filler, Two-Part Clear Coat, Warning Messages”, page 304](#)

⇒ [“4.17.3 Overview - SprayMax Spray Cans”, page 304](#)

⇒ [“4.17.4 One-Part Clean Spray Can LLS MAX 099 and One-Part Clean Spray Can LLS MAX 100, Aquaplus System”, page 305](#)

⇒ [“4.17.5 AquaPremium System, One-Part Clean Spray Can LLS MAX 112”, page 312](#)

⇒ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#)

⇒ [“4.17.7 One-Part Anti-Corrosion Primer, Reddish Brown”, page 321](#)

⇒ [“4.17.8 One-Part Underbody Protection, Black”, page 326](#)

⇒ [“4.17.9 Two-Part Clear Coat”, page 329](#)

⇒ [“4.17.10 Two-Part Acrylic Filler, Medium Gray”, page 332](#)

⇒ [“4.17.11 Two-Part HS Premium Filler”, page 338](#)

⇒ [“4.17.12 One-Part Plastic Bonding Agent”, page 344](#)

⇒ [“4.17.13 One-Part Silicone Remover, Long”, page 349](#)

⇒ [“4.17.14 Aqua One-Part Silicone Remover”, page 351](#)

⇒ [“4.17.15 One-Part Control Black”, page 353](#)

⇒ [“4.17.16 One-Part Clear Coat”, page 357](#)

⇒ [“4.17.17 One-Part Blender”, page 361](#)

⇒ [“4.17.18 One-Part Wash Primer”, page 365](#)

⇒ [“4.17.19 Two-part wash primer”, page 371](#)

### 4.17.1 Using One-Part Clean Spray Cans, Warning Messages

#### Risk of explosion and poisoning

Do not fill the filling cans above their maximum capacity. There is the risk of an explosion!

- ◆ Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- ◆ Never use poisonous, carcinogenic materials or halogenated hydrocarbons to fill the spray can.
- ◆ Caution: electrostatic charge Only clean the plastic parts with a moist cloth.
- ◆ Position the Spray Can Filling Device - VAS 6425- in a well-ventilated room.
- ◆ Paint residue should be removed from the device regularly with a cloth and appropriate cleaning solution.
- ◆ Routinely check the condition of the compressed air supply line.

## 4.17.2 Using Two-Part Spray Cans, Two-Part Acrylic Filler, Two-Part Clear Coat, Warning Messages

### Vapors and spray mist

Coating materials ready for application which contain isocyanates may cause irritation to mucous membranes – especially the respiratory organs – and cause hypersensitive reactions. Sensitization may occur if vapors and spray mist are inhaled. Carefully observe all rules for working with coating materials containing solvents when working with coating materials containing isocyanate. Particular care must be taken to prevent inhalation of spray mist and vapor.

Persons suffering from allergies, asthma or other respiratory problems should not work with coating products containing isocyanate.

- ◆ Note the safety data sheets as well as the warnings on the label of the spray nozzle.

## 4.17.3 Overview - SprayMax Spray Cans

### SprayMax System

The SprayMax system is especially suitable for professional use in paint shops for small to medium paint repairs and touch-up work.

The SprayMax System combines the advantages of a spray gun and a spray can.

SprayMax, important notes:

- ◆ Spray head technology: can be turned all around
- ◆ Spray pattern technology: round or oval
- ◆ Shake the spray can vigorously for approximately three minutes before use. After usage, briefly spray free while holding the spray can upside-down.

**The following products are available with SprayMax technology:**

- ◆ M1 = 250 ml
  - ◆ M2 = 400 ml
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Cleaning products:

- ◆ Refer to ⇒ [“4.17.14 Aqua One-Part Silicone Remover”, page 351](#) . LLS MAX 007
- ◆ Refer to ⇒ [“4.17.13 One-Part Silicone Remover, Long”, page 349](#) . LLS MAX 008

Plastics:

- ◆ Refer to ⇒ [“4.17.12 One-Part Plastic Bonding Agent”, page 344](#) . LLS MAX 015

Sanding, Control:

- ◆ Refer to ⇒ [“4.17.15 One-Part Control Black”, page 353](#) . LLS MAX 005 M2

Corrosion protection:

- ◆ Refer to ⇒ [“4.17.7 One-Part Anti-Corrosion Primer, Reddish Brown”, page 321](#) . LLS MAX 003 M2

Underbody Protection:

- ◆ Refer to ➤ [“4.17.8 One-Part Underbody Protection, Black”, page 326](#) . LLS MAX D39 M2

One-part wash primer:

- ◆ Refer to ➤ [“4.17.18 One-Part Wash Primer”, page 365](#) . Light gray, LLS MAX 106 M2
- ◆ Refer to ➤ [“4.17.18 One-Part Wash Primer”, page 365](#) . Dark gray, LLS MAX 107 M2

Two-part wash primer:

- ◆ Refer to ➤ [“4.17.19 Two-part wash primer”, page 371](#) . LLS MAX 230 M1

Two-Part Filler:

- ◆ Refer to ➤ [“4.17.11 Two-Part HS Premium Filler”, page 338](#) . LLS MAX 202 M2

Color:

- ◆ Refer to ➤ [“4.17.4 One-Part Clean Spray Can LLS MAX 099 and One-Part Clean Spray Can LLS MAX 100, Aquaplus System”, page 305](#) .
- ◆ Refer to ➤ [“4.17.5 AquaPremium System, One-Part Clean Spray Can LLS MAX 112”, page 312](#) .

Clear Coats:

- ◆ Refer to ➤ [“4.17.16 One-Part Clear Coat”, page 357](#) . LLS MAX 010
- ◆ Refer to ➤ [“4.17.9 Two-Part Clear Coat”, page 329](#) . LLS MAX 210

Touch-up painting:

- ◆ Refer to ➤ [“4.17.17 One-Part Blender”, page 361](#) . LLS MAX 009

Additional materials/tools:

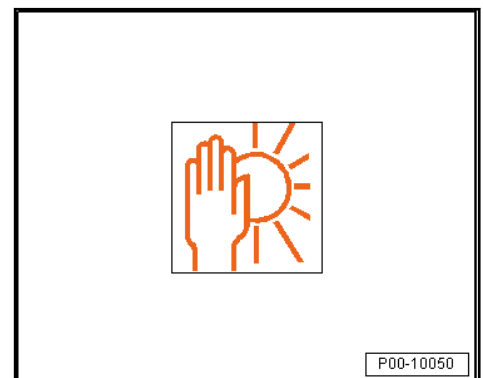
- ◆ Handle for SprayMax LLS 000 000
- ◆ FillClean Filling Device and FillClean Attachment Plate - VAS 6425-

#### 4.17.4 One-Part Clean Spray Can LLS MAX 099 and One-Part Clean Spray Can LLS MAX 100, Aquaplus System

##### Storage

The guaranteed shelf life for only pre-filled spray cans is 24 months.

The guaranteed shelf life for spray cans filled with paint is four weeks.





## VOC value

VOC value: 2004/42/IIB (e) (840) 690	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 690 g (24.3 oz)/l.
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## Versions

- ◆ One-Part Clean Spray Can LLS MAX 099, 250 ml for Water-Based Mixed Paint "Aquaplus System"
  - ◆ One-Part Clean Spray Can LLS MAX 100, 400 ml for Water-Based Mixed Paint "Aquaplus System"
- 

## Product Description

These products include a paint spray nozzle prefilled with a propellant gas and solvent combination which is particularly compatible with the "Aquaplus System" and "Aqua Premium System".

For filling, only use the Spray Can Filling Device .

Application area: exclusively clever repair

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## Handling Instructions

The spray can does not yet contain paint materials. It is a half-finished product.

The processable end product is formed by adding in 100 ml of undiluted Aquaplus or Aqua Premium base paint using the Spray Can Filling Device designed for this purpose.

When using ready-made and paint-filled spray cans, re-label it before using. This can be carried out, for example, by using a color label that is produced by the mixing bench formula range and printed out.

Make sure that the information indicated in the following example is present on the label.

### Contents and prefilling

- ◆ The contents of 316 ml/0.32 L on the label correspond to a filled spray can.
  - ◆ It is pre-filled with 216 ml propellant gas and solvent, as well as 100 ml of subsequently added Aquaplus or Aqua-Premium base paint including Additive for Aqua Premium LVM 035 200 or Additive for Aqua Premium LVM 035 301.
-

### Suitable base surfaces

- ◆ Two-Part HS Filler
- ◆ Intact old paint
- ◆ One-Part Wash Primer LVM 044 007 A2 / One-Part Wash Primer LVM 044 171 A2
- ◆ Two-Part Plastic Adhesive Filler LKF 696 009 A2 / Two-Part Plastic Adhesive Filler LKF 696 040 A2

### Base, preparation

- Clean factory, old paint or two-part HS filler thoroughly using Silicone Remover LSW 019 000 A5.
- If very dirty, clean beforehand using Silicone Remover, Long LVM 020 100 A5.



- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.

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- Or wet-sand with P800 to 1000 grit wet sandpaper.



- Before reworking, carefully clean the sanded base surfaces of dust, sanding residue and other dirt with Silicone Remover LSW 019 000 A5.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks. Refer to Refer to ➤ [“4.15 Cleaning Agent”](#), page 297 .
- Prime the sanded-through areas with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2.
- ◆ The sanded-through areas should not be larger than 5.0 cm in diameter.
- ◆ When using the two-part HS filler, any bare areas must be primed with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2.
- ◆ Create a spray-on test sample before processing.

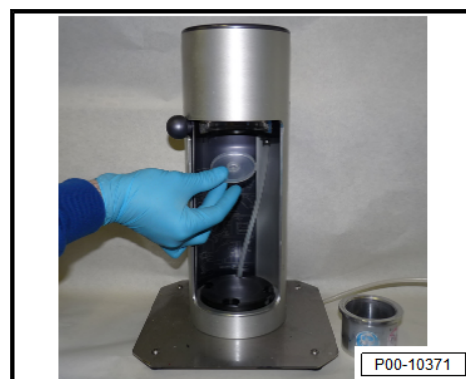


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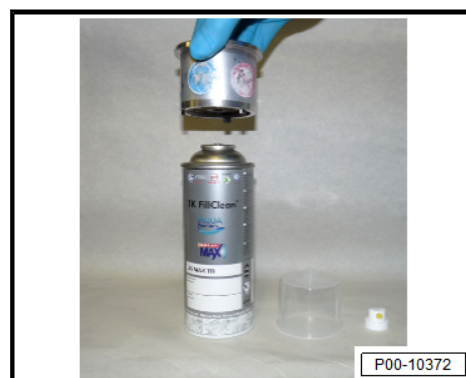
### Clean Filling Procedure

- Pay attention to the Owner's Manual of the Spray Can Filling Device .

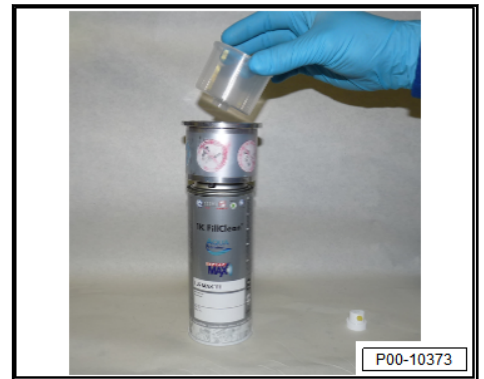
- Set the filling pad on the pressing stamp.



- Set the Fill-Clean Filling cylinder on the spray can.



- Position/press the Fill-Clean cap.



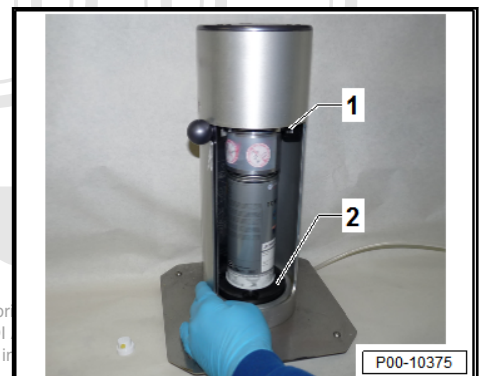
- Fill with paint.



- Insert the Fill Clean spray can with the filled filling cylinder in the upper groove -1- of the Spray Can Filling Device .

#### Condition

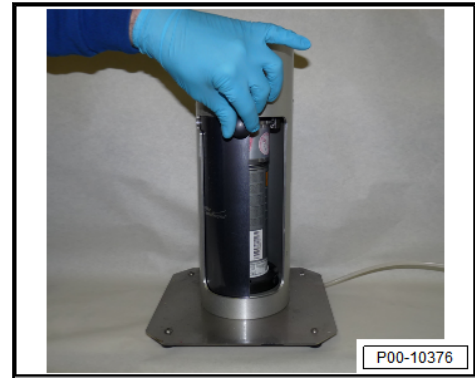
- When inserting the Fill Clean spray can into the upper groove -1-, the lower turntable -2- must first be at the very bottom. If the Fill Clean can is in the upper groove -1-, turn the turntable -2- as a counterhold upward.



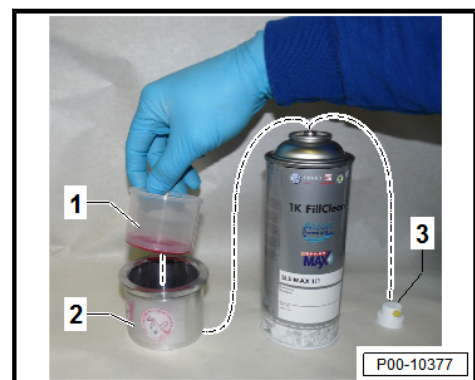
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- Slide the cover with the button to the right to release the contents.

Duration: approximately 10 seconds.



- Remove the filling cylinder -2- from the Fill-Clean can after filling.
- Remove the Fill-Clean cap -1- from the filling cylinder -2-.
- Position the spray head -3- on the Fill Clean can.



- Leave the pad in the Fill Clean cap for color orientation.
- The Fill Clean can is now ready for use.



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## Processing

- Adhere to the procedure.

### Condition

- Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- After filling, shake the spray can for approximately two minutes.
- After application, shake the spray can for approximately two minutes.

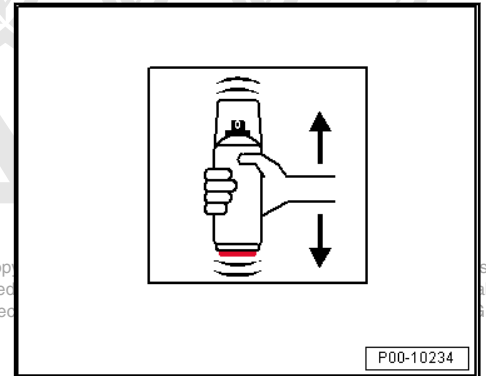
- Shake briefly again before every subsequent spray application.

- Shake the can thoroughly for at least two minutes to ensure a proper mixing.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.

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#### Spray application

- Perform the application type coat.

#### Condition

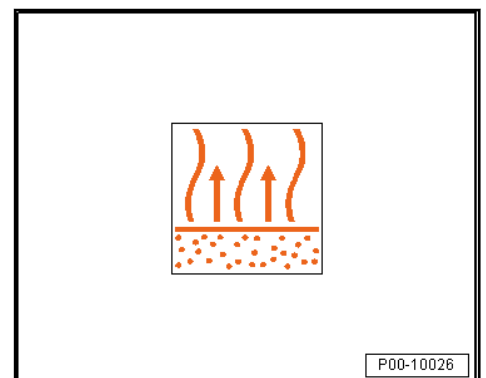
- Keep a spray distance of 20 to 25 cm.



- Apply two spray applications, one normal application + one finish/effect spray application, with 5 to 10 minutes intermediate flash-off time.

#### Condition

- The layer thickness is 15 to 20 µm.



#### Notes:

- ◆ For colors with poor covering properties, it may be necessary to apply another spray application, wet-on-wet.

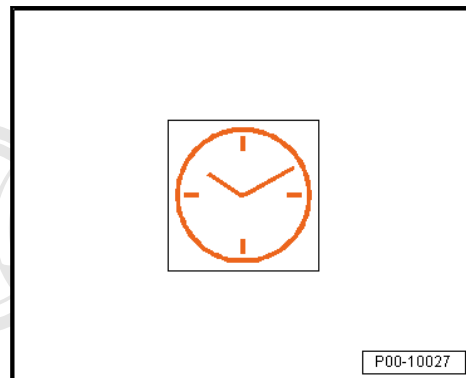
- ◆ Alternatively, it can be ventilated to form a matte finish in-between spray applications.
  - ◆ After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.
  - ◆ Dispose of the empty spray cans as recyclable material.
- 

### Drying

The drying/flash-off time is at +20 °C (68 °F) room temperature for 15 to 30 minutes.

#### Condition

- Allow to ventilate until matted.



Can be painted over with:

- ◆ Two-Part HS Clear Coat. Refer to ⇒ [“4.9 Clear Coats”, page 204](#).
- ◆ Two-Part Clear Coat LLS MAX 210, reworking with other two-part HS clear coats is possible.

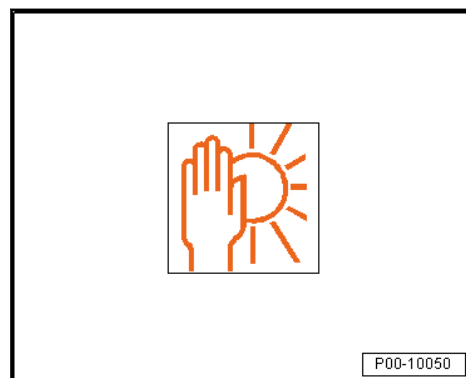
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### 4.17.5 AquaPremium System, One-Part Clean Spray Can LLS MAX 112

#### Storage

The guaranteed shelf life for only pre-filled spray cans is 24 months.

The guaranteed shelf life for spray cans filled with paint is one week.



## VOC value

VOC value: 2004/42/IIB (e) (840) 690	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 690 g (24.3 oz)/l.
---	---

## Versions

- ◆ One-Part Clean Spray Can LLS MAX 112, 400 ml for Water-Based Mixed Paint "AquaPremium System"

## Product Description

The One-Part Clean Spray Can LLS MAX 112 is a paint spray can pre-filled with a propellant gas and solvent combination, specifically adjusted to the "Aquaplast System" and "AquaPremium System".

For filling, only use the Spray Can Filling Device .

Application area: exclusively clever repair

## Handling Instructions

The spray can does not yet contain paint materials. It is a half-finished product.

The processable end product is formed by adding in 100 ml of undiluted AquaPremium base paint or Aquaplast, using the Spray Can Filling Device designed for this purpose.

When using ready-made and paint-filled spray cans, re-label it before using. This can be carried out, for example, by using a color label that is produced by the mixing bench formula range and printed out.

Make sure that the information indicated in the following example is present on the label.

### Contents and prefilling

- ◆ The contents of 316 ml/0.32 L on the label correspond to a filled spray can.
- ◆ It is pre-filled with 294 ml propellant gas and solvent, as well as 100 ml of subsequently added Aqua-Premium base paint including Additive for Aqua Premium LVM 035 200 or Additive for Aqua Premium LVM 035 301.

## Suitable base surfaces

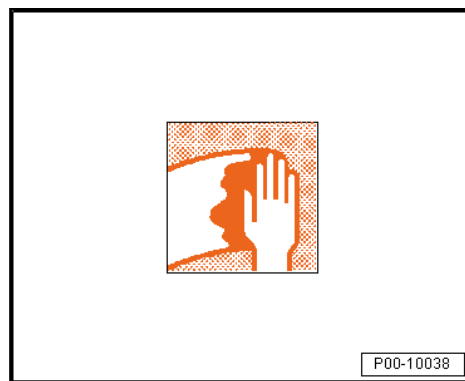
- ◆ Two-Part HS Filler
- ◆ Intact old paint



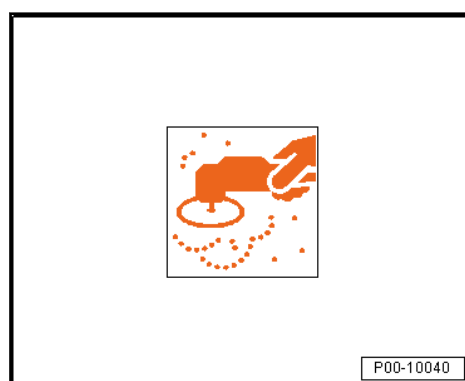
- ◆ One-Part Wash Primer LVM 044 007 A2 / One-Part Wash Primer LVM 044 171 A2
  - ◆ Two-Part Plastic Adhesive Filler LKF 696 009 A2 / Two-Part Plastic Adhesive Filler LKF 696 040 A2
- 

### Base, preparation

- Clean factory, old paint or two-part HS filler thoroughly using Silicone Remover LSW 019 000 A5.
- If very dirty, clean beforehand using Silicone Remover, Long LVM 020 100 A5.



- Perform dry sanding using a rotary sander, with P500 dry sanding paper and dust extraction.

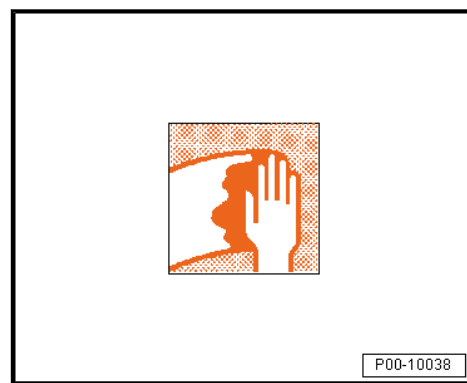


- Or wet-sand with P800 to 1000 grit wet sandpaper.

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- Before reworking, carefully clean the sanded base surfaces of dust, sanding residue and other dirt with Silicone Remover LSW 019 000 A5.
- Wipe off any residual silicone remover with a lint-free cloth, leaving no streaks. Refer to ["4.15 Cleaning Agent", page 297](#).
- Prime the sanded-through areas with One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2.
- ◆ The sanded-through areas should not be larger than 5.0 cm in diameter.
- ◆ When using the two-part HS filler, any bare areas must be primed with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 007 A2/One-Part Wash Primer LVM 044 171 A2.
- ◆ Create a spray-on test sample before processing.



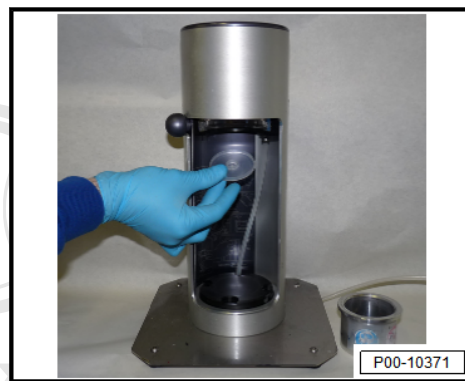
### Mixing Instructions for "Aquaplus Premium System"

Mixing containers	Plastic containers or tin-coated cans painted on the inside
Strainers	Waterproof-glued or waterproof 125 µm strainer
Additive	Additive for AquaPremium LVM 035 200/300/301, at a normal/high temperature and low humidity depending on the respective object size
Curing Time	After adding additive for AquaPremium LVM 035 200/300/301, process within 24 hours.
Adding additive at +20 °C (68 °F) material temperature	20% Additive for AquaPremium LVM 035 200/300/301
Recommendation for solid colors	Use additive for AquaPremium LVM 035 301 for the best possible reliability of application.

### Clean Filling Procedure

- Pay attention to the Owner's Manual of the Spray Can Filling Device.

- Set the filling pad on the pressing stamp.



- Set the Fill-Clean Filling cylinder on the spray can.

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- Position/press the Fill-Clean cap.



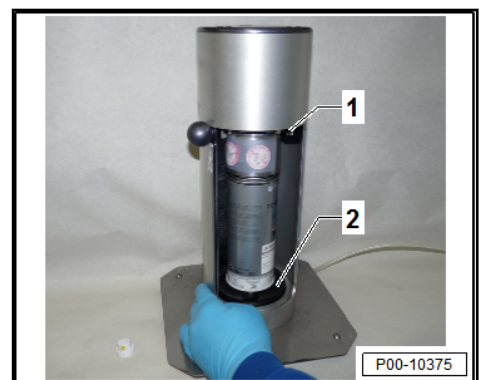
- Fill with paint.



- Insert the Fill Clean spray can with the filled filling cylinder in the upper groove -1- of the Spray Can Filling Device .

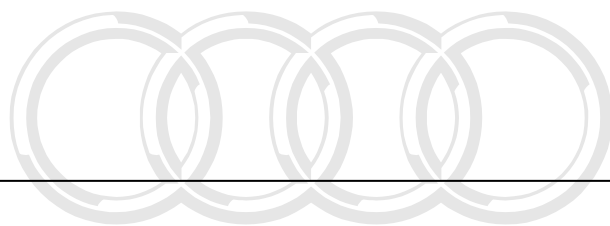
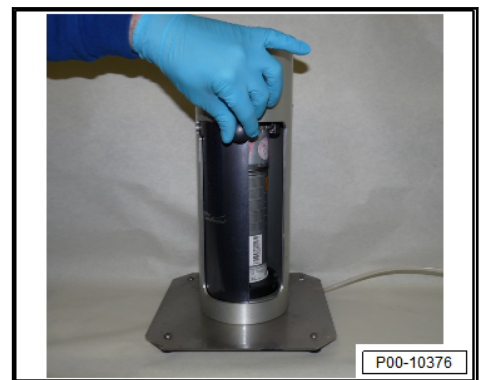
#### Condition

- When inserting the Fill Clean spray can into the upper groove -1-, the lower turntable -2- must first be at the very bottom. If the Fill Clean can is in the upper groove -1-, turn the turntable -2- as a counterhold upward.



- Slide the cover with the button to the right to release the contents.

Duration: approximately 10 seconds.

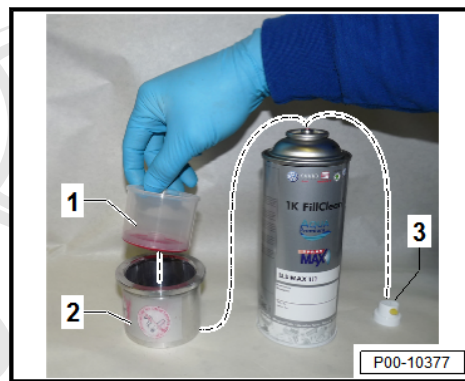


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- Remove the filling cylinder -2- from the Fill-Clean can after filling.
- Remove the Fill-Clean cap -1- from the filling cylinder -2-.
- Position the spray head -3- on the Fill Clean can.



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- Leave the pad in the Fill Clean cap for color orientation.

The Fill Clean can is now ready for use.



## Processing

- Adhere to the procedure.

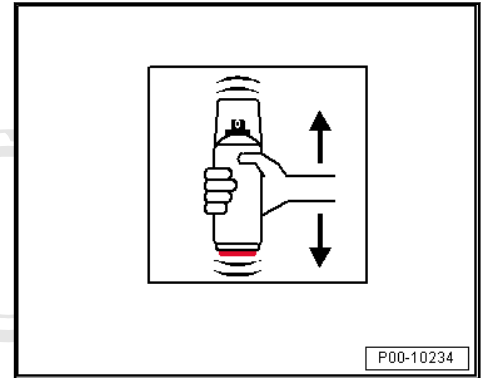
### Condition

- Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- After filling, shake the spray can for approximately two minutes.
- After application, shake the spray can for approximately two minutes.
- Shake briefly again before every subsequent spray application.

- Shake the can thoroughly for at least two minutes to ensure a proper mixing.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



### Spray applications

- Perform the application type coat.

#### Condition

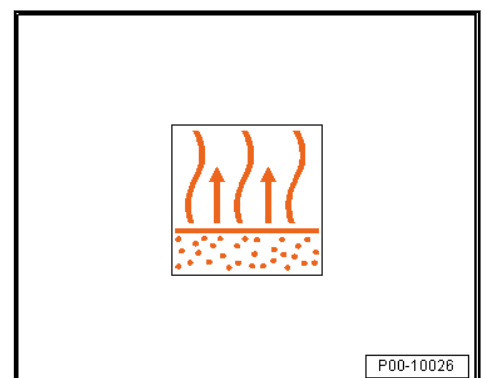
- Keep a spray distance of 20 to 25 cm.



- Apply two spray applications, one normal application + one finish/effect spray application, with 5 to 10 minutes intermediate flash-off time.

#### Condition

- The layer thickness is 15 to 20 µm.



#### Notes:

- ◆ For colors with poor covering properties, it may be necessary to apply another spray application, wet-on-wet.
- ◆ Alternatively, it can be ventilated to form a matte finish in-between spray applications.
- ◆ After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.

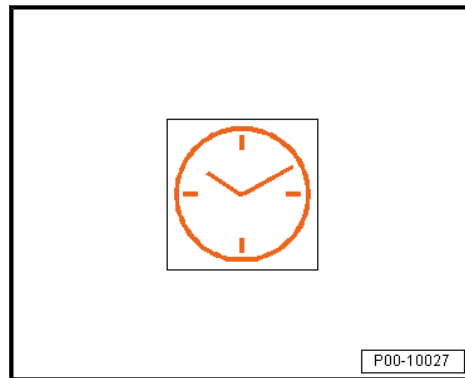
- ◆ Dispose of the empty spray cans as recyclable material.

## Drying

The drying/flash-off time is at +20 °C (68 °F) room temperature for 15 to 30 minutes.

### Condition

- Allow to ventilate until matted.



Can be painted over with:

- ◆ Two-Part HS Clear Coat. Refer to ➤ ["4.9 Clear Coats", page 204](#).
- ◆ Two-Part Clear Coat LLS MAX 210, reworking with other two-part HS clear coats is possible.

## 4.17.6 Two-Part Spray Can, Activating

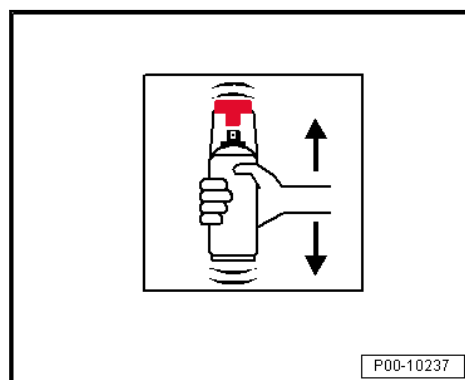
### Information about using a two-part spray can

There are major differences in comparison to one-part spray cans which must be considered.

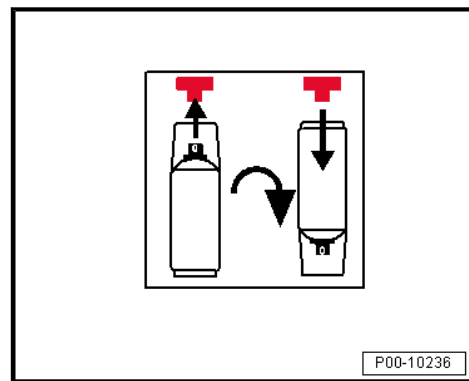
If users are handling two-part spray cans for the first time, make them aware of two-part specifics. In the past it has been common to start using a two-part spray can after only shaking it once or twice. This procedure would always lead to a negative result when using a two-part spray can.

### Activating a two-part spray can

- Check the product to make sure that it is the right spray can.
- ◆ If a wrong spray can is activated by accident and it is not used or the pot life ended, then it is worthless/useless.
- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.



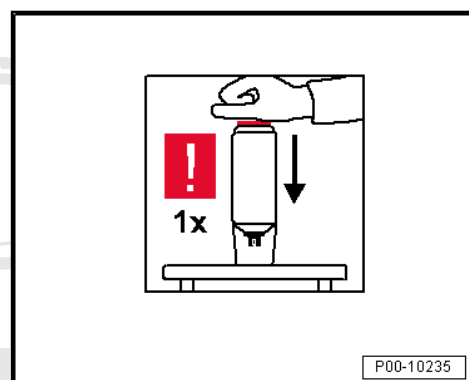
- Remove the red pressure button from the cap and attach the pin on the spray can bottom without tilting it.
- Place the spray can, with the bottom cap onto level ground.



- Press in the valve for the hardener mixture.

#### Condition

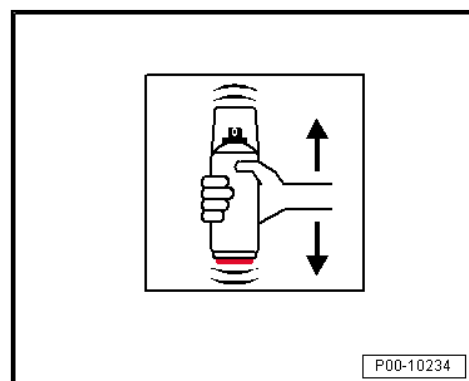
- Make sure the spray can is placed upside-down when evenly and vertically pressing in the hardener mixture valve.
- Pay attention to the cracking sound.
- Only press once.
- Immediately dispose of the red activation button to make sure it is evident which spray can has already been activated.
- Label the spray can in the field “activated on” with the respective activation date and time. The pot life applies to an ambient temperature of 20 °C (68 °F).
- ◆ The pot life varies depending on the ambient temperature.
- ◆ Low temperatures prolong the pot life, higher temperatures shorten it.



- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.
- Empty the valve. After ending the work procedure, empty the spray head while the spray head is facing downward.



### 4.17.7 One-Part Anti-Corrosion Primer, Reddish Brown

**NOTICE**

The vast amount of alloys and manufacturing processes for metals makes it necessary to preform a test on the respective underground.

Make sure that the pre-treatment suffices in providing perfect adhesion.

- Do not rework with polyester products.
- Do not rework with epoxy products.
- Do not apply to thermoplastic coatings.
- Do not directly rework with water-based base paint.
- Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- Shake briefly again before every spray application.

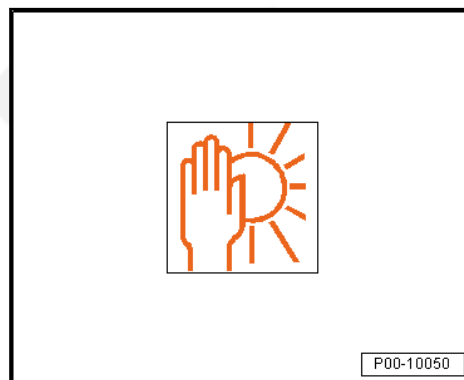


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**Storage**

The guaranteed shelf life for only pre-filled spray cans is 60 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

**VOC value**

VOC value: 2004/42/IIB (e)  
(840) 690

The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 690 g (24.3 oz)/l.

**Usability**

One-Part Anti-Corrosion Primer, Reddish Brown LLS MAX 003 can be used on:

Base surface	Suitability
Polyester filler	+ +
Steel	+ + +
Galvanized steel	+ + +
Aluminum	+ + +

Base surface	Suitability
Glass fiber reinforced plastic (GFRP)	-

One-Part Anti-Corrosion Primer, Reddish Brown LLS MAX 003 can be used as:

Roll	Suitability
Welding primer	+ + +
Primer	+ + +
Filler	-

### Application area:

The One-Part Anti-Corrosion Primer, Reddish Brown LLS MAX 003 is a zinc chromate-free one-part product from the PVB system.

It can be used as a wash primer for all conventional metallic base surfaces.

- ◆ Good corrosion protection properties
- ◆ Easy handling, one-part material

### Suitable base surfaces

- ◆ Steel
- ◆ Cleaned and sanded, galvanized/electrolytically zinc sheet steel or soft aluminum
- ◆ Sanded factory primer
- ◆ Thoroughly sanded old primer or factory primer, excluding thermoplastic coating
- ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit

### Base, preparation

- Thoroughly clean the base surfaces beforehand using Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any potential rust spots and sand any transitions to old paint.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



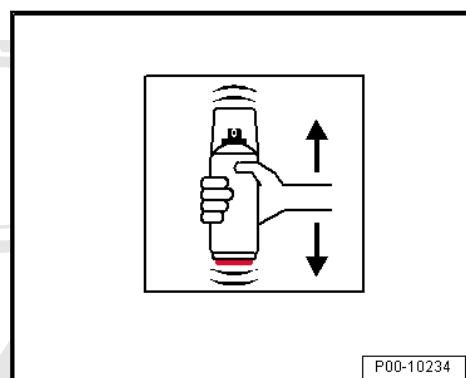
### Spray can

- Refer to ➔ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

- Shake the spray can for two minutes. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.

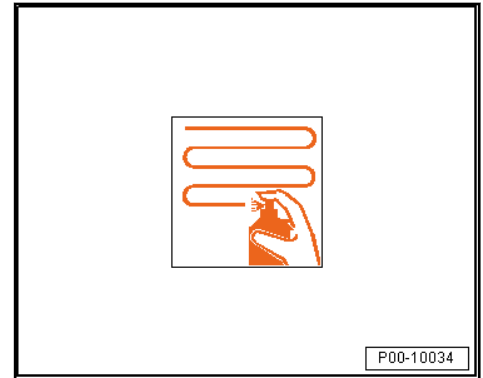


### Spray application

- Perform two spray applications

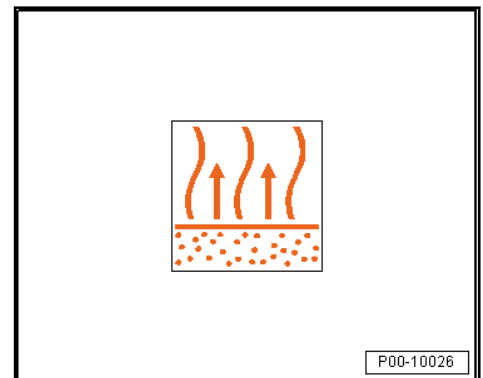
#### Condition

- Keep a spray distance of 20 to 25 cm.
- Use the elongated spray head for areas that are difficult to reach.
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



### Drying

Air drying: Intermediate flash-off time in between the spray applications is approximately 5 to 10 minutes.

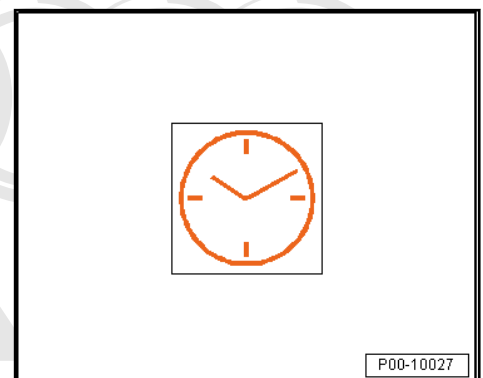


Specified layer thickness:

#### Condition

- 15 - 20 µm dry layer thickness

Air drying/flash-off time 10 to 20 minutes at +20 °C (68 °F) room temperature.



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### Reworking:

- ◆ After the flash-off time it can be coated with two-part HS filler. Refer to [Refer to "4.4 Filler", page 89](#).

## Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

Dispose of the empty spray cans as recyclable material.

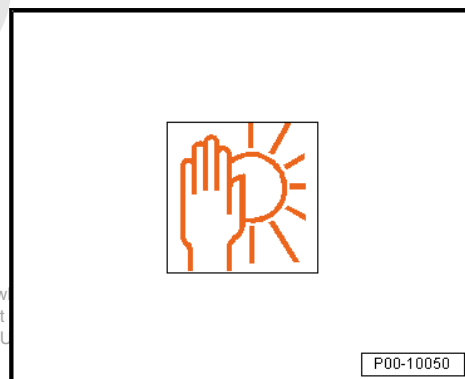
## 4.17.8 One-Part Underbody Protection, Black

### Storage

The guaranteed shelf life for only pre-filled spray cans is 60 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

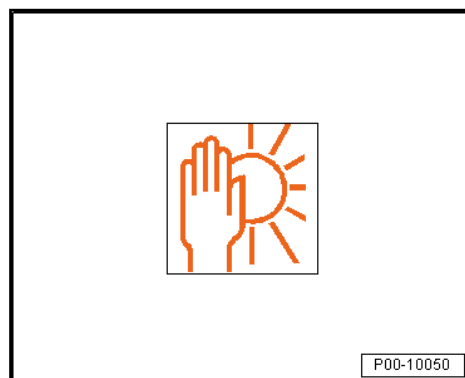
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### Storage Conditions

The information about the usability applies to an unused spray can which has been stored according to the recommendations between +15 and 25 °C (59 and 77 °F) and a relative humidity of less than 60%.

- ◆ The spray can must be stored and transported upright, dry and protected from chemical and mechanical influences.
- ◆ Pay attention to the safety precautions labeled on the spray can as well as all legal requirements to the storage location.



### VOC value

VOC value: 2004/42/II B (e) (840) 703	The EU limit for this product (product category II B.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 703 g (24.8 oz)/l.
--	--

## Properties

- ◆ Satin finish one-part coating
- ◆ Very versatile in use due to its 360° technology.
- ◆ High adhesion strength and elasticity
- ◆ Thick layers
- ◆ Very good coverage and resistance

Application area:	Corrosion protection on vehicles
Material base	Combination from polyester resins
Solid content	About 70%, in regard to the paint without propellant gas
Label	See safety data sheet
Color	RAL 9005 deep black
Gloss level	Satin finish

## Cleaning

- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.

### Condition

- All base surfaces: the base surface must be dry and free of dust and grease.



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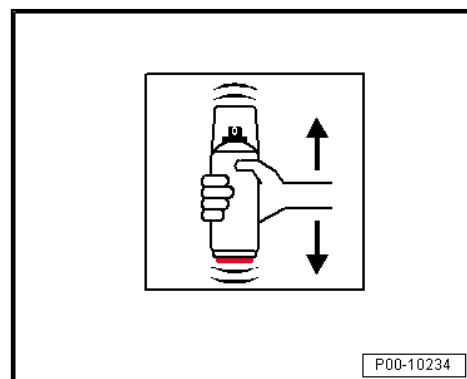
## Spray can

- Refer to ➔ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



### Spray application

- Perform two to three spray applications.

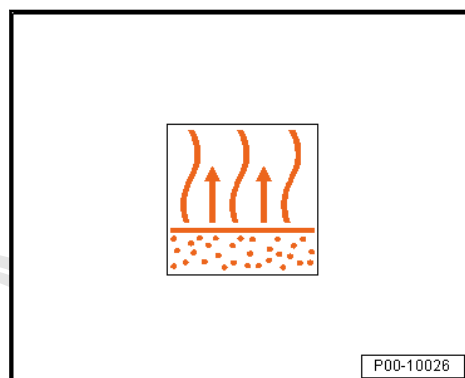
#### Condition

- Keep a spray distance of 20 to 25 cm.
- Use the elongated spray head for areas that are difficult to reach.



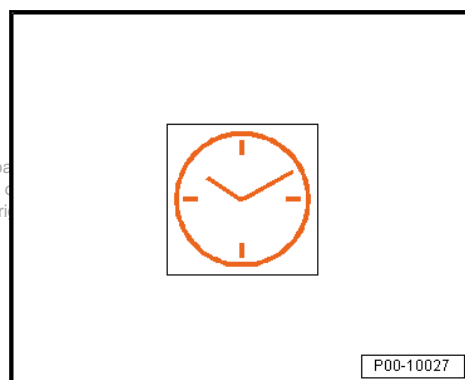
### Drying

The flashing-off time in between spray applications is five minutes.



The specified drying times relate to a dry layer thickness of 250 µm and an ambient temperature of 20 °C (68 °F).

Dust dry, dryness level 1, according to DIN 53150	45 minutes
Dry to handle, dryness level 3, according to DIN 53150	24 hours
Completely dry, dryness level 5, according to DIN 53150	72 hours



## Work end and disposal

The valve cannot be sprayed empty after completion of the paint process.

Dispose of the empty spray cans as recyclable material.

## 4.17.9 Two-Part Clear Coat

### Properties

- ◆ Application-oriented product-specific aerosol formulation
- ◆ Constant atomizing pressure
- ◆ Aerosol distribution
- ◆ Professional painting result
- ◆ Excellent filling ability
- ◆ Application area: touch up in part- and repair paint job area

### Product

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The Two-Part Clear Coat LLS MAX 210 is a high-gloss two-part clear coat for long-lasting sealing of painted surfaces. It is specially developed for part and repair paint jobs.

Two-part clear coat is characterized by its resistance to weather and chemicals, an exceptional gasoline resistance and good polishability.

The two-part clear coat has good flow properties and tends to be used for larger surfaces (one to two vehicle body parts).

Two-part clear coat has excellent filling abilities.

### VOC value

668g (23.6 oz)/l, 258g (9.1 oz) can

### Raw material base

Paint: two-part acrylic resins

Hardener: contains isocyanate

### Usability

Two-part clear coat is usable as a clear-coat over:

Base surface	Suitability
One-part base paint	+ + +
One-part water-based paint	+ + +
Two-part top coat	+ +
Old paints	+ + +



### Application area:

Recommended for:

- ◆ Touch up in part paint jobs and repair paint jobs

Base surface:

- ◆ Solvent- and water-soluble base paint systems
  - ◆ Old paints, cleaned and sanded
- 

### Processing

- Refer to ⇒ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

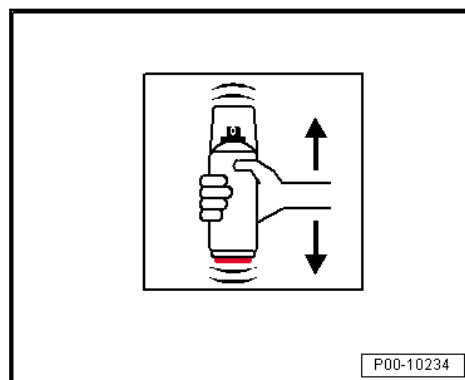
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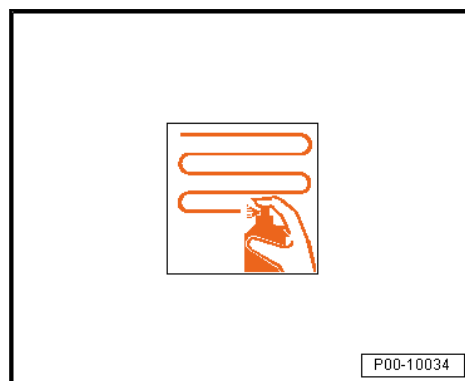
- Shake the spray can for two minutes. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

Condition

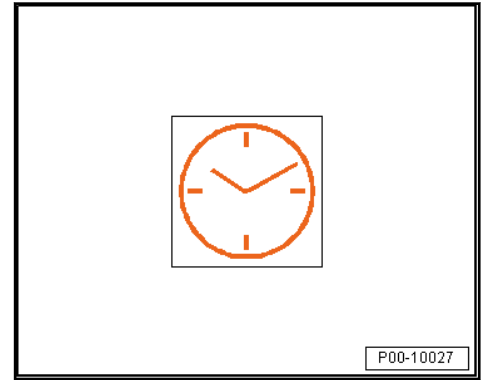
- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



- Apply one to two coats.
- ◆ Adhere to layer thickness of 30 µm

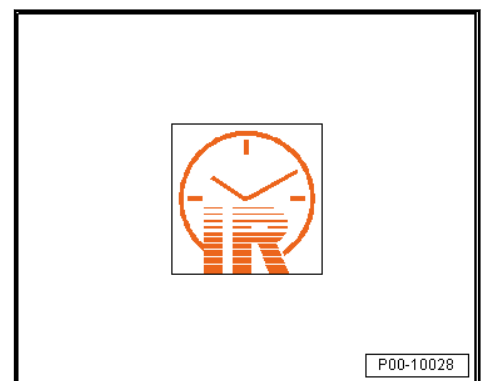
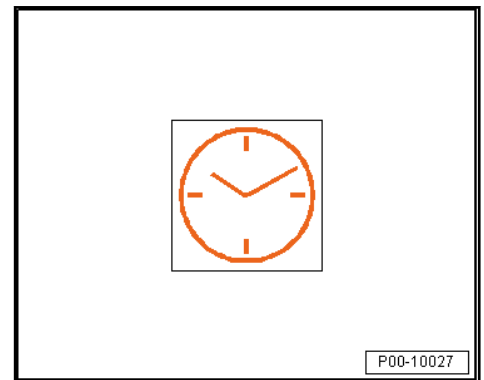


- Adhere to flashing-off time in between spray applications:  
10 to 15 minutes depending on the temperature.
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



### Drying

Air drying, 12 hours at 20 °C (68 °F).



IR drying, 35 to 40 minutes at 60 °C (140 °F).

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### Further Processing

- ◆ 48 hours at +20 °C (68 °F) room temperature
- ◆ The processing time is dependent on the ambient temperature

- ◆ Higher temperatures lead to a shortened pot life, while lower temperatures lead to a longer pot life.
- 

### Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

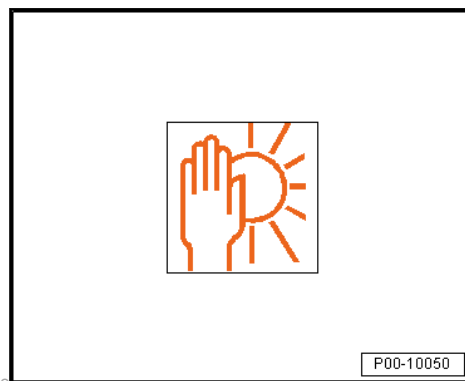
Dispose of the empty spray cans as recyclable material.

## 4.17.10 Two-Part Acrylic Filler, Medium Gray

### Storage

Guaranteed shelf life of 36 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



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### VOC value

Delivery viscosity:	Pasty
Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (e) (840) 360	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC-value of this product in ready-to-use form is a maximum of 360 g (12.7 oz)/l.

---

### Application Instructions

Any faults in the base surface can be filled using Two-Part Polyester Filler DA 787 300 A2. After drying and intermediate sanding, insulate the filler patches with two-part HS premium filler.

The best insulation, even with critical surfaces, is achieved with a medium layer of 80 to 120 µm applied in two to three spray applications, with air-drying overnight, or oven/IR drying.

Fine preliminary work is needed for critical surfaces. Parts must be filler entirely.

To isolate thermoplastic coatings, use sanding filler Two-Part HS Performance Filler LVM 014 100/173/190 A4 or Two-Part HS Wet-on-Wet Filler LVM 013 008/905 A4. Mixture ratios: ta-

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ble. Refer to Refer to ⇒ [“4.4.5 The Right Filler for each Repair”, page 132](#) .

Dispose of the empty spray cans as recyclable material.

#### Condition

- Note the safety data sheets as well as the warnings on the label of the spray nozzle.

### Properties

Two-Part Acrylic Filler, Medium Gray LLS MAX 202 M2 is a very high-quality acrylic resin base two-part acrylic filler.

- ◆ Constant atomizing pressure
- ◆ Aerosol distribution
- ◆ Long curing time
- ◆ Optimal and stable processing properties
- ◆ Great stability under load
- ◆ Sands well
- ◆ High yield
- ◆ Excellent high-build characteristics
- ◆ Application area: clever repair
- ◆ Professional painting result

### Suitable base surfaces

- ◆ Sheet steel that has been cleaned, sanded and primed with Two-Part Wash Primer LHV 043 000 A2 or One-Part Wash Primer LVM 044 007/171 A2, galvanized/electrolytically zinc coated sheet steel or soft aluminum
- ◆ Finely sanded, thoroughly cleaned, original factory primer.
- ◆ Sanded factory paint or old paint, except TPA
- ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit
- ◆ Cleaned and sanded UP-GF surfaces, free of separating agents

### Base, preparation

- Thoroughly clean the base surfaces beforehand using Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any potential rust spots and sand any transitions to old paint.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



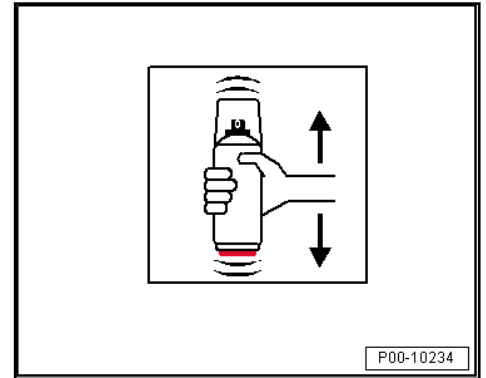
### Spray can

- Refer to ➔ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

#### Condition

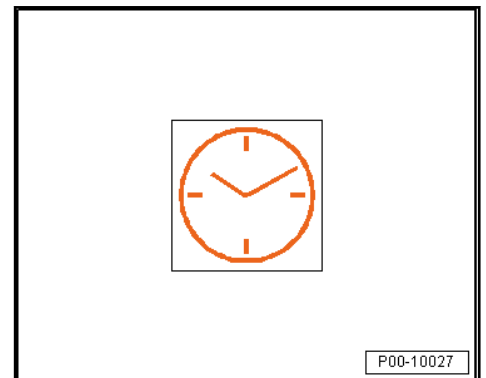
- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



## Drying

Curing Time:

Eight hours at +20 °C (68 °F).



## Spray application

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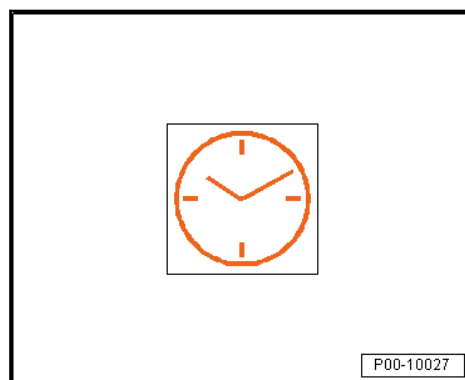
- Keep a spray distance of 20 to 25 cm.
- Apply two to three covered spray applications.
- ◆ Recommended layer thickness: approximately 80 - 120 µm dry layer thickness.
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



## Drying

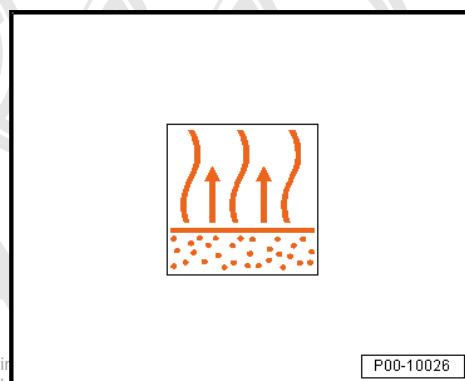
Air drying at 80 - 120 µm:

Three to four hours.



Forced drying:

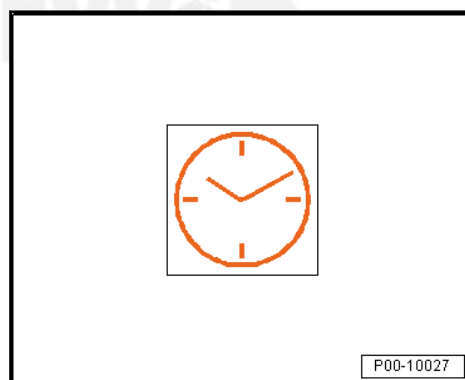
Flash-off time of 5 to 15 minutes.



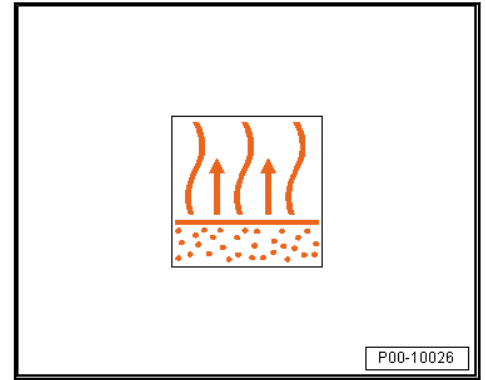
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Air drying while object temperature is +60 °C:

80 - 120 µm: 30 - 40 minutes

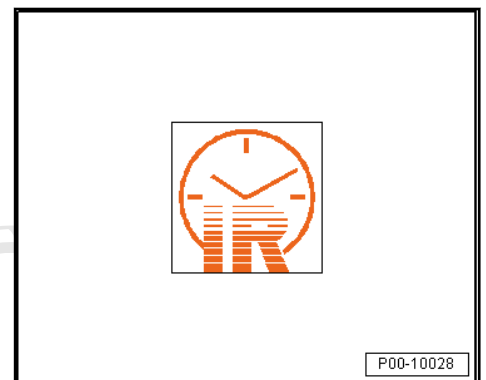


Flash-off time: 5 to 15 minutes.



IR drying:

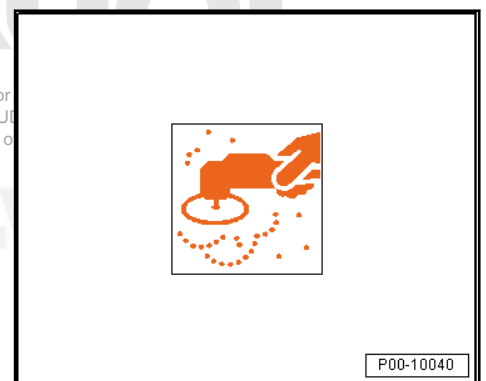
Layer thickness	Drying time when using medium-waves	Drying time when using short-waves
80 - 120 µm	15 minutes	10 minutes



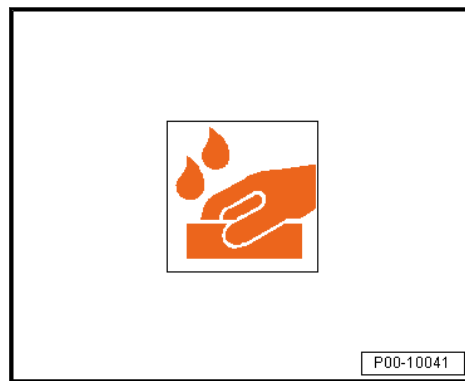
### Further processing

- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.

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- Or wet-sand with P800 to 1000 grit wet sandpaper.



### Reworking

Can be painted over with:

- ◆ Refer to ➔ [“4.5.1 Two-Part HS Top Coat”, page 133](#) .
- ◆ Water-based base paint and two-part HS top coat

### Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

Dispose of the empty spray cans as recyclable material.

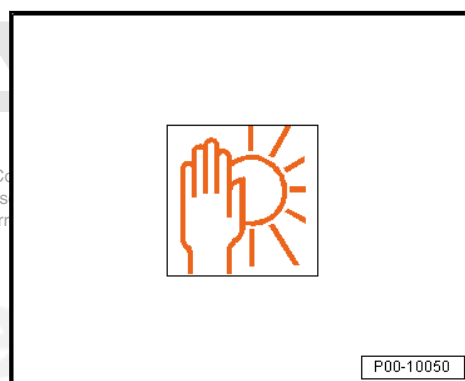
### 4.17.11 Two-Part HS Premium Filler

#### Storage

Guaranteed shelf life of 24 months from production date.

- ◆ Two-Part HS Premium Filler, light-gray LGF 013 007 A4
- ◆ Two-Part HS Premium Filler, white LGF 013 100 A4
- ◆ Two-Part HS Premium Filler, dark gray LVM 013 171 A4
- ◆ Two-Part HS Premium Filler, black LGF 013 190 A4

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### VOC value

Delivery viscosity:	Thixotropic
Flashpoint:	above +23 °C (73.4 °F)

VOC value: 2004/42/IIB (c) (540) 540	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 540 g (19 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 540 g (19 oz)/l.
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## Application Instructions

Any faults in the base surface can be filled using Tow-Part Polyester Filler DA 787 300 A2. After drying and intermediate sanding, insulate the filler patches with two-part HS premium filler.

The best insulation, even with critical surfaces, is achieved with a medium layer of 80 to 120 µm applied in two to three spray applications, with air-drying overnight, or oven/IR drying.

Fine preliminary work is needed for critical surfaces. Parts must be filler entirely.

To isolate thermoplastic coatings, use sanding filler Two-Part HS Performance Filler LVM 014 100/173/190 A4 or Two-Part HS Wet-on-Wet Filler LVM 013 008/905 A4. Mixture ratios: table. Refer to Refer to ➔ ["4.4.5 The Right Filler for each Repair", page 132](#).

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Dispose of the empty spray cans as recyclable material.

### Condition

- Note the safety data sheets as well as the warnings on the label of the spray nozzle.

## Properties

These two-part premium fillers are high-quality two-part HS acrylic-resin-based fillers.

- ◆ Constant atomizing pressure
- ◆ Aerosol distribution
- ◆ Long curing time
- ◆ Optimal and stable processing properties
- ◆ Great stability under load
- ◆ Sands well
- ◆ High yield
- ◆ Excellent high-build characteristics
- ◆ Application area: clever repair
- ◆ Professional painting result

## Suitable base surfaces

- ◆ Sheet steel that has been cleaned, sanded and primed with Two-Part Wash Primer LHV 043 000 A2 or One-Part

Wash Primer LVM 044 007/171 A2, galvanized/electrolytically zined sheet steel or soft aluminum

- ◆ Finely sanded, thoroughly cleaned, original factory primer.
  - ◆ Sanded factory paint or old paint, except TPA
  - ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit
  - ◆ Cleaned and sanded UP-GF surfaces, free of separating agents
- 

### Base, preparation

- Thoroughly clean the base surfaces beforehand using Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any potential rust spots and sand any transitions to old paint.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



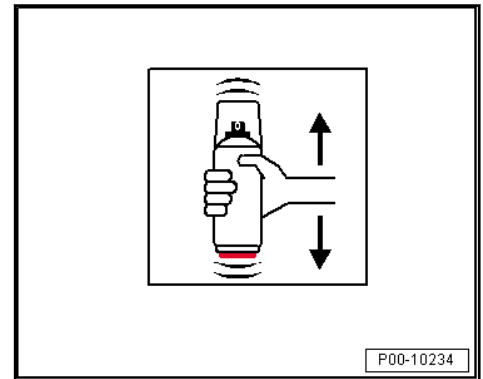
## Spray can

- Refer to ➔ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

- Shake the spray can for two minutes. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

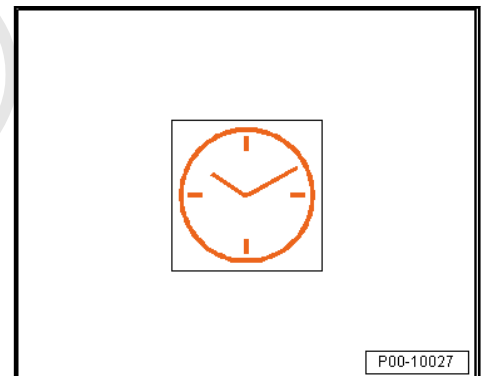
### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



## Drying

- Processing time eight hours at +20 °C (68 °F).



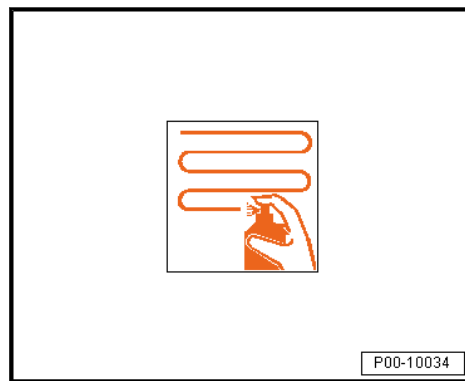
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## Spray application

### Condition

- Keep a spray distance of 20 to 25 cm.

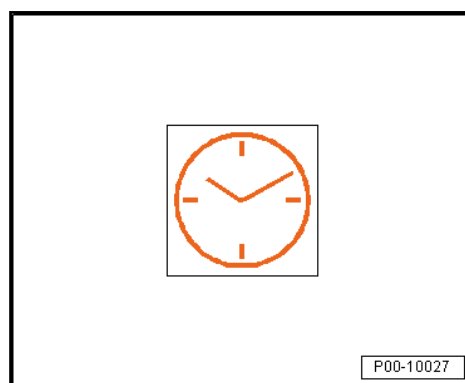
- Apply two to three covered spray applications.
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



### Drying

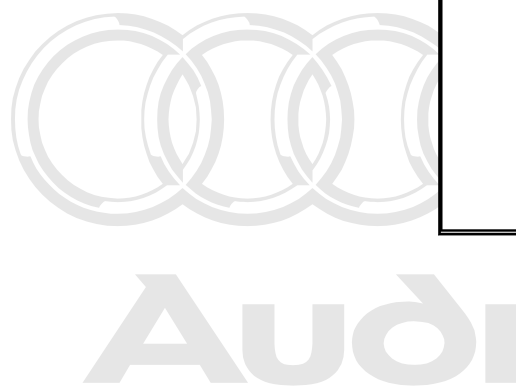
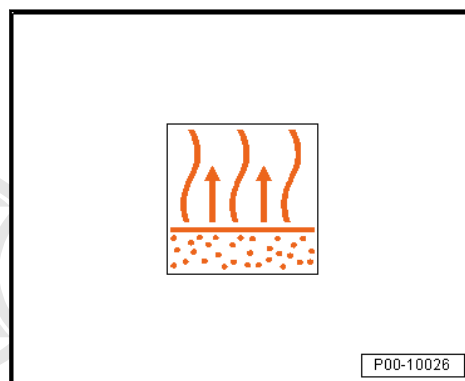
Air dry, sandable at +20 °C (68 °F) room temperature:

80 to 120 µm, three to four hours.



Forced drying:

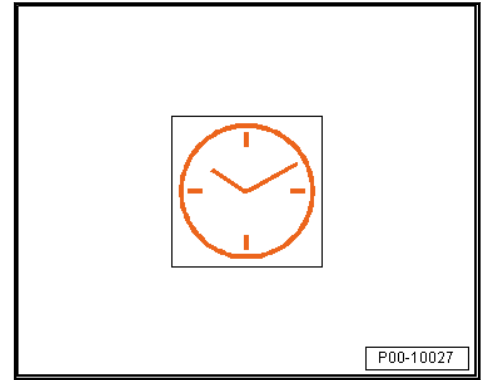
5 to 15 minutes.



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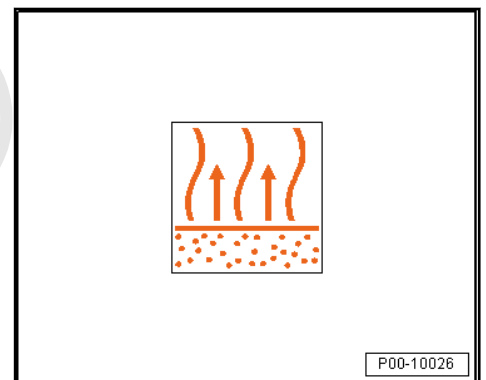
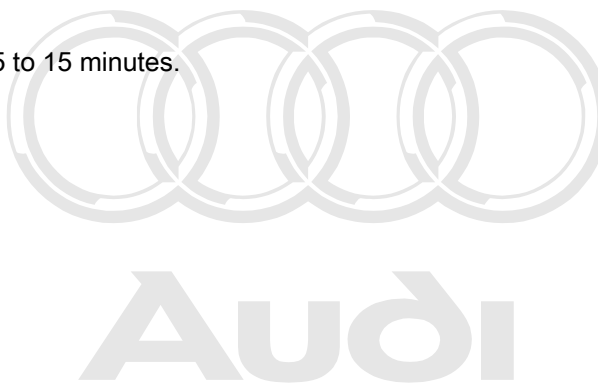


Air drying while object temperature is +60 °C:  
80 - 120 µm: 30 - 40 minutes.



### Flash-off time

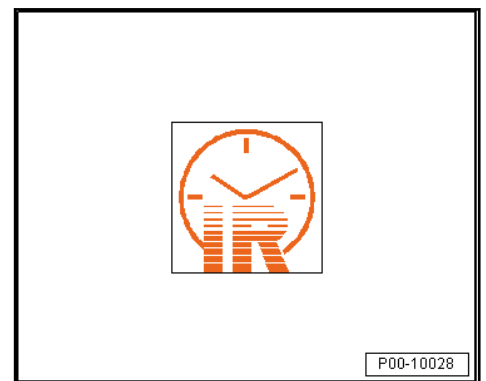
Flash-off time of 5 to 15 minutes.



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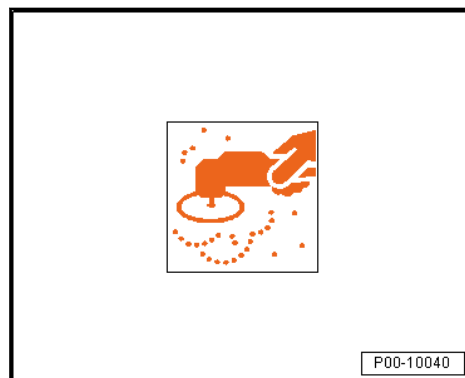
IR drying:

Layer thickness	Drying time when using medium-waves	Drying time when using short-waves
80 - 120 µm	15 minutes	10 minutes



### Further processing

- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.



- Or wet-sand with P800 to 1000 grit wet sandpaper.



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### Reworking

Can be painted over with:

- ◆ Refer to ⇒ [“4.5.1 Two-Part HS Top Coat”, page 133](#) .
- ◆ Water-based base paint and two-part HS top coat

### Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

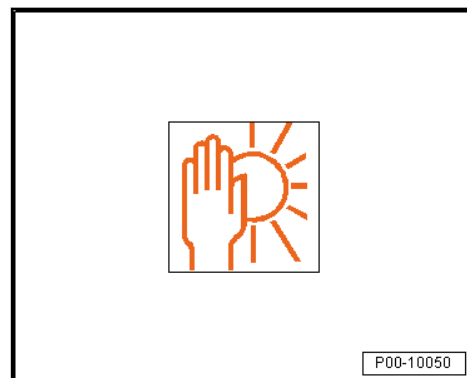
Dispose of the empty spray cans as recyclable material.

## 4.17.12 One-Part Plastic Bonding Agent

## Storage

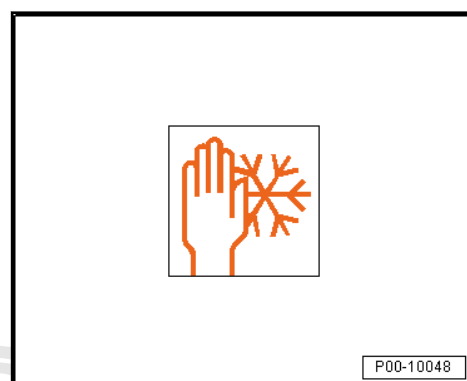
The guaranteed shelf life for only pre-filled spray cans is 60 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## Storage Conditions

- ◆ Storage Temperature +20 °C to +25 °C (68 °F to 77 °F)
- ◆ The temperature must not fall below +5 °C (41 °F)



## VOC value

VOC value: 2004/42/II B(e) (840) 730	The EU limit for this product (product category II B.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 730 g (25.8 oz)/l.
---	--

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## Application Instructions

- Perform before using.

### Condition

- Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- Shake briefly again before every spray application.



## Usability

The One-Part Plastic Bonding Agent LLS MAX 015 can be used on

Base surface	Suitability
PP + + +	+ + +
PP/EPDM	+ + +
ABS	+ + +
SAN	+ + +
PC	+ + +
PUR-RIM	+ + +
R-TPU	+ + +
PPO	+ + +
PBT	+ + +
UP-GF	+ + +
PUR	+ + +
Soft foam	+ + +

The One-Part Plastic Bonding Agent LLS MAX 015 can be coated with

Roll	Suitability
One-part acrylic filler	+ + +
Base paints	+ + +
Two-part acrylic paints	+ + +
Two-part acrylic filler	+ + +

## Properties

- ◆ Easy processing
- ◆ Good adhesion properties
- ◆ High elasticity

## Base, preparation

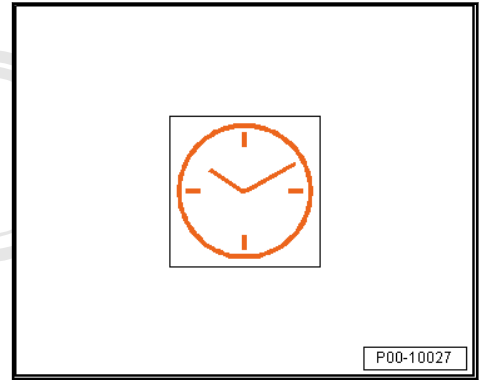
- Clean using Plastic Cleaner, Antistatic LVM 001 001 A2 or a milder Silicone Remover, Long LVM 020 100 A5.

The effort needed for cleaning depends on the type and quantity of the separating agent used.

- It is recommended to use sanding pads, for example 3M 7448 or similar from a different manufacturer, to support the cleaning process.



- Let the thinner evaporate, for example, air-drying overnight at room temperature or 30 to 40 minutes at +60 °C (140 °F).

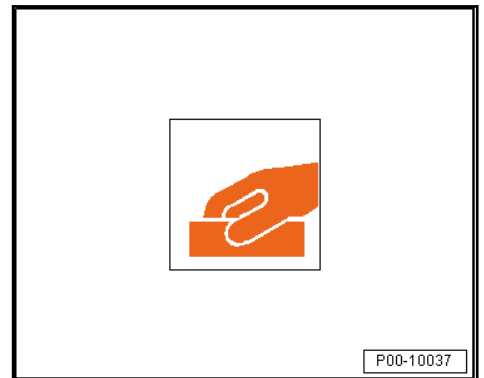


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- Before applying primer, once again lightly clean using Plastic Cleaner, Antistatic LVM 001 001 A2 or a milder Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any potential rust spots and sand any transitions to old paint.



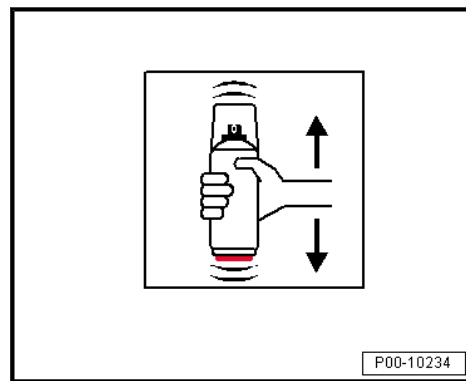
#### Spray can

- Refer to ⇒ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.

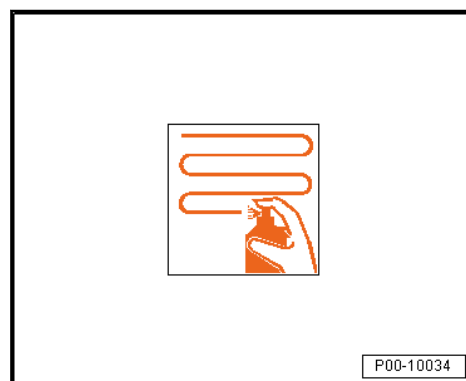


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## Processing

#### Condition

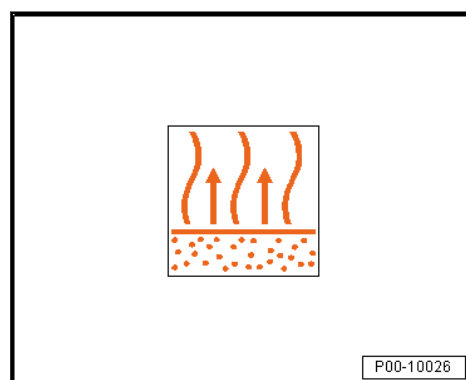
- Keep a spray distance of 20 to 25 cm.
- Apply one complete spray application of 1 to 2  $\mu\text{m}$ .
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



#### Intermediate flash-off time

Air drying at +20 °C (68 °F) room temperature: 10 to 15 minutes.

- ◆ For sanded-through areas that are not larger than 5.0 cm in diameter, one-part plastic bonding agents can be reworked directly with a top coat



#### Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

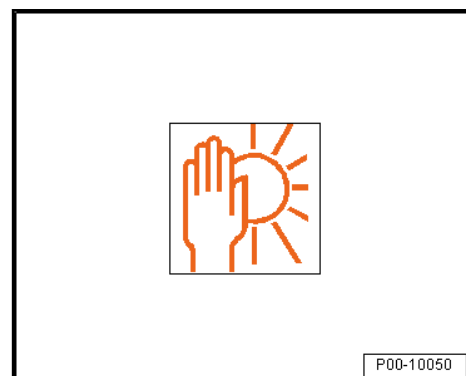
Dispose of the empty spray cans as recyclable material.

## 4.17.13 One-Part Silicone Remover, Long

### Storage

The guaranteed shelf life for only pre-filled spray cans is 36 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### VOC value

VOC value: 2004/42/IIB (e) (840) 620	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 620 g (21.9 oz)/l.
---	---

### Usability

One-Part Silicone Remover, Long LLS MAX 008 can be used for:

Base surface	Suitability
Primed, filled surfaces	+ + +
Factory and old paint	+ + +
Plastic parts	+ + +
Metal/glass	+ + +

### Product

- ◆ Easy to process
- ◆ Evaporates leaving no residue
- ◆ Removes silicone, grease, oil, wax, dirt, tar and soot
- ◆ Mild, non-aggressive solvent

A specific solvent combination serves as the raw material base

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## Properties

- ◆ Constant atomizing pressure
  - ◆ Aerosol distribution
  - ◆ Professional painting result
  - ◆ Painted surfaces do not become corroded
  - ◆ Removes all kinds of silicone
  - ◆ An ideal cleaner for dirt and soot. Removes cavity sealant or wax
  - ◆ Removes dried-on grease residue, for example door hinges
  - ◆ Removes oil and grease residue
  - ◆ Ideal solvent for tar marks
  - ◆ Removes adhesive residue, for example stickers
- 

## Characteristics

Solid content	0%
Yield	Approximately 0.75 m (2.5 feet) <sup>2</sup> - 1m (-3.3 feet) <sup>2</sup> /spray can
Gloss level	Not applicable

---

## Application area:

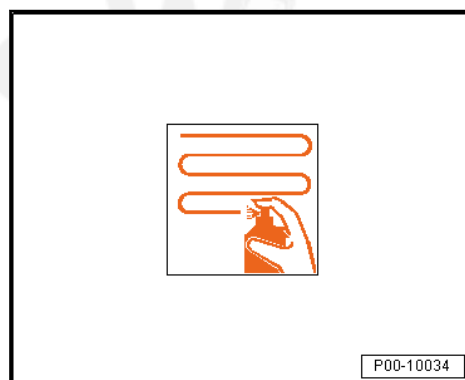
Recommended for:

- ◆ Parts painting and spot repair aid
  - ◆ Painted or blank base surfaces
- 

## Processing

- Apply one light coat.

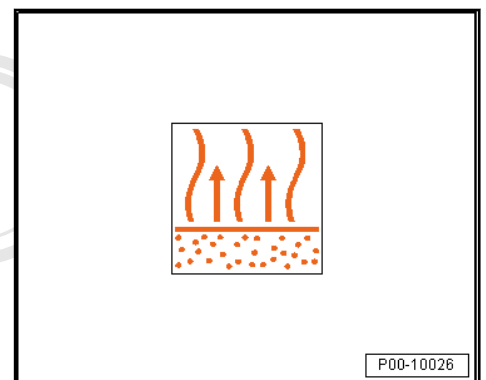
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- Clean, using clean, dry cloth.



- Allow to evaporate from the cleaned surfaces fully. Repeat the cleaning procedure if the surface is very dirty.



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#### Work end and disposal

After ending the cleaning procedure, put the spray can upside-down and empty the valve.

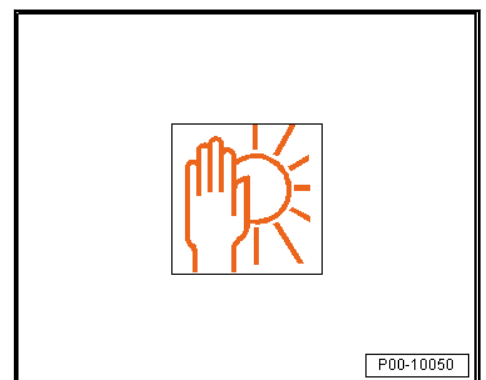
Dispose of the empty spray cans as recyclable material.

#### 4.17.14 Aqua One-Part Silicone Remover

##### Storage

The guaranteed shelf life for only pre-filled spray cans is 36 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## VOC value

VOC value: 2004/42/IIB (e) (840) 620	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 620 g (21.9 oz)/l.
---	---

## Usability

One-Part Silicone Remover, Aqua LLS MAX 007 can be used for:

Base surface	Suitability
Primed, filled surfaces	+ + +
Factory and old paint	+ + +
Plastic parts	+ + +
Metal/glass	+ + +

## Product

- ◆ Water-based, solvent-reduced cleaner which is rich in active ingredients
- ◆ Highly effective cleaning- and degreasing agent
- ◆ Strengthens the adhesion
- ◆ Highest yield
- ◆ Even distribution

A specific solvent combination serves as the raw material base

## Properties

- ◆ Constant atomizing pressure
- ◆ Aerosol distribution
- ◆ Professional painting result
- ◆ Painted surfaces do not become corroded
- ◆ Removes all kinds of silicone
- ◆ An ideal cleaner for dirt and soot. Removes cavity sealant or wax
- ◆ Removes dried-on grease residue, for example door hinges
- ◆ Removes oil and grease residue
- ◆ Ideal solvent for tar marks
- ◆ Removes adhesive residue, for example stickers

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## Characteristics

Solid content	0 %
Yield	Approximately 0.75 m (2.5 feet) <sup>2</sup> - 1m (-3.3 feet) <sup>2</sup> /spray can
Gloss level	Not applicable

## Application area:

Recommended for:

- ◆ Parts painting and spot repair aid
- ◆ Best suited for use during the subsequent painting of Aqua-Plus water-based paints

## Suitable base surfaces

- ◆ Primed and filled metal, glass, old or factory paint surfaces
- ◆ Painted or blank base surfaces

## Processing

- Apply a light coating immediately before applying the subsequent paint layer and wipe dry right away with a clean and dry cloth.
- ◆ Do not let the silicone remover evaporate from the surface.
- ◆ Only work on small areas at the same time.
- ◆ Repeat the cleaning procedure if the surface is very dirty.
- ◆ Change the towels more often.
- ◆ Do not use dirty towels.



## Work end and disposal

After ending the cleaning procedure, put the spray can upside-down and empty the valve.

Dispose of the empty spray cans as recyclable material.

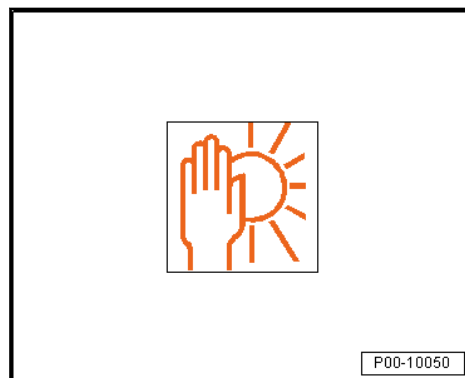
## 4.17.15 One-Part Control Black



## Storage

The guaranteed shelf life for only pre-filled spray cans is 36 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## VOC value

650 - 693g (22.9 - 24.4 oz)/l, 260g - 277g can

## Properties

- ◆ Constant atomizing pressure
- ◆ Aerosol distribution
- ◆ Professional painting result
- ◆ Easy to process
- ◆ Dries quickly
- ◆ High yield
- ◆ High covering capacity
- ◆ Even application
- ◆ Easy to sand
- ◆ The raw material base are special NC resin combinations

## Characteristics

Solid content	16%
Yield	Approximately 0.5 m (1.6 feet) <sup>2</sup> / spray can with 30 to 40 µm dry layer thickness
Gloss level	One-part control black, 4 to 7 E at 60°

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## Usability

One-Part Control Black LLS MAX 005 M2 can be used for:

Base surface	Suitability
Polyester filler	+ +

Base surface	Suitability
Steel	+ +
Galvanized steel	+ +
Aluminum	+ +
Welding primer	+ + +
Primer	+ + +
Filler	+ + +
Wet-on-wet processing	+ + +

### Application area:

Detecting uneven surfaces in primer- and filler base surfaces

### Suitable base surfaces

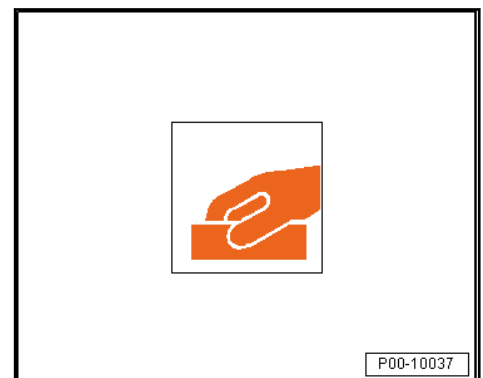
- ◆ All primers unsanded
- ◆ All fillers unsanded

### Base, preparation

- Thoroughly clean the base surfaces beforehand using Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any potential rust spots and sand any transitions to old paint.



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- Clean with One-Part Silicone Remover, Aqua LLS MAX 007/  
One-Part Silicone Remover LLS MAX 008.

#### Condition

- The surface must be free of grease, dust and it must be dry.



#### Spray can

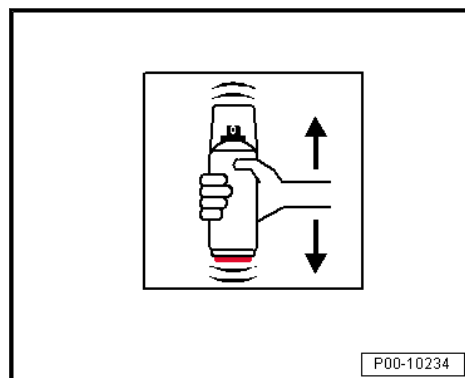
- Refer to ⇒ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

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- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.

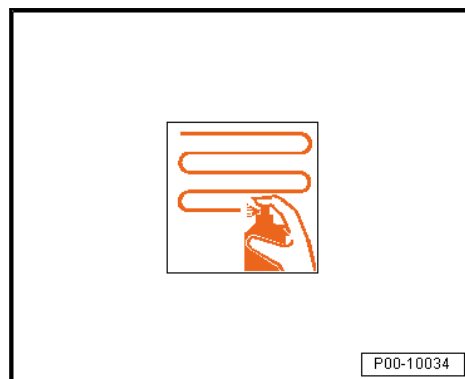


#### Processing

- Apply one misty, thin and even spray application.

#### Condition

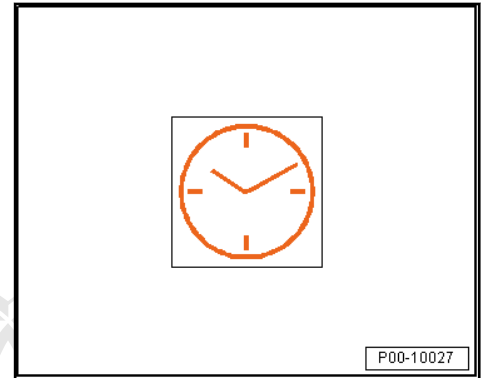
- Adhere to a layer thickness of 15 µm
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



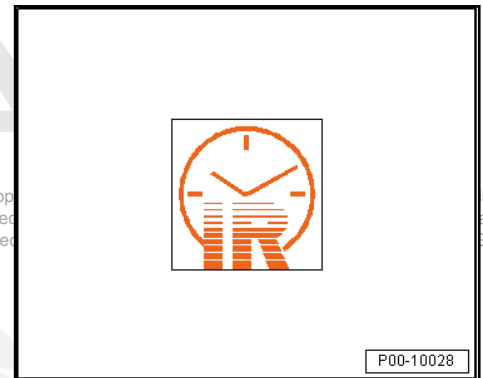
## Drying

Air Drying:

Dry after 10 minutes at 20 °C (68 °F).



IR drying possible.



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## Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

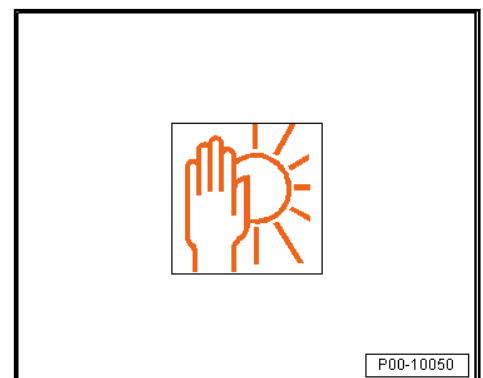
Dispose of the empty spray cans as recyclable material.

## 4.17.16 One-Part Clear Coat

### Storage

The guaranteed shelf life for only pre-filled spray cans is 36 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).





## VOC value

VOC value: 2004/42/IIB (e) (840) 629	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 629 g (22.2 oz)/l.
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## Properties

- ◆ Constant atomizing pressure
- ◆ Aerosol distribution
- ◆ Professional painting result
- ◆ Easy to process
- ◆ Dries quickly
- ◆ High gloss
- ◆ Universally applicable
- ◆ Easy polishing

Raw material base are acrylic resins

---

## Characteristics

Solid content	20% by weight
Yield	Approximately 0.5 m (1.6 feet) <sup>2</sup> - 0.75 m (-2.5 feet) <sup>2</sup> / spray can at approximately 30 - 40 µm dry layer thickness
Gloss level	90 units, 60° measurement geometry

---

## Usability

One-Part Clear Coat LLS MAX 010 as a clear coat, can be used over:

Base surface	Suitability
One-part base paint	+ + +
One-part water-based paints	+ + +
Two-Part Top Coat	+ +
Old paints	+ + +

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## Application area:

Recommended for:

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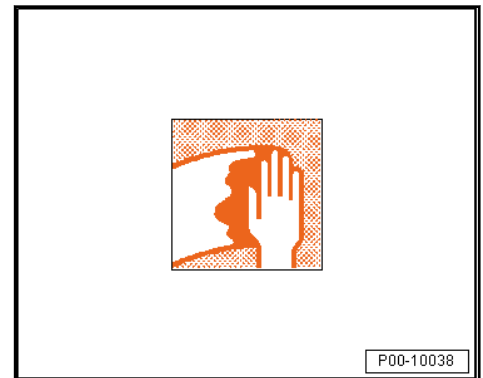
## ◆ Repair work and partial painting

### Suitable base surfaces

- ◆ Solvent or water-based base paints
- ◆ The base paint can be painted over with One-Part Clear Coat LLS MAX 010 after 30 minutes.

### Base, preparation

- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



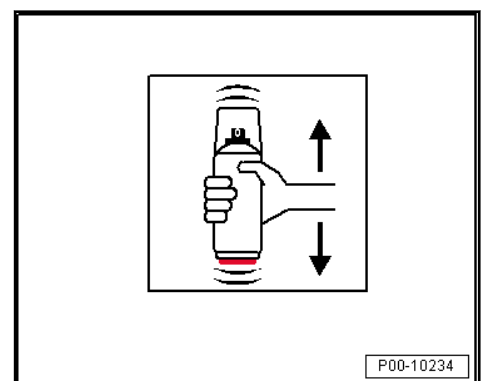
### Spray can

- Refer to ⇒ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



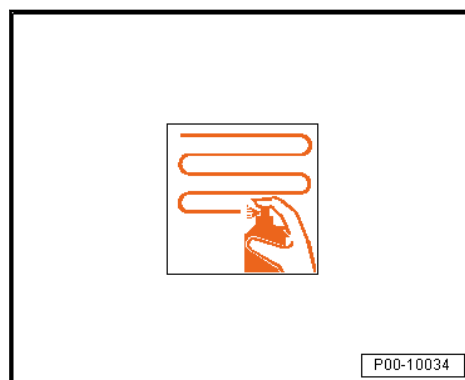
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## Spray application

- Perform two to three spray applications.

### Condition

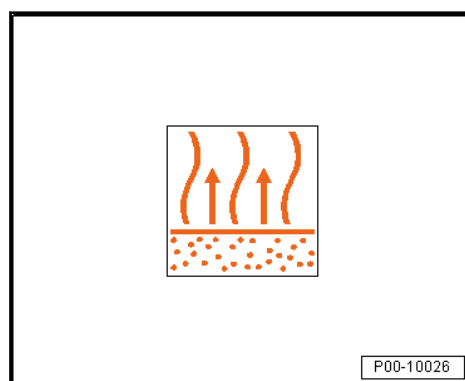
- Adhere to a layer thickness of 15 µm
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



## Drying

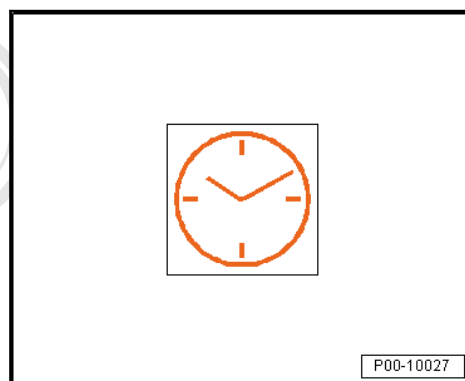
Intermediate flash-off time between the spray applications:

5 to 10 minutes



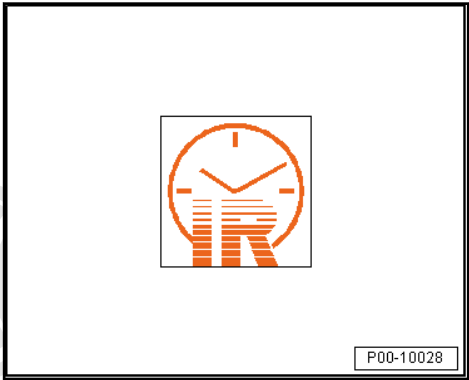
Air drying/flash-off time:

Dust dry	10 minutes at 20 °C (68 °F)
Dry to handle	20 minutes at 20 °C (68 °F)
Can be polished	After 12 hours at 20 °C (68 °F).



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Short-wave IR radiation:  
Seven minutes



Further processing, work end and disposal

Can be polished after 12 hours at 20 °C (68 °F), using commercially available polishes.

After ending the spray procedure, put the spray can upside down and empty the valve.

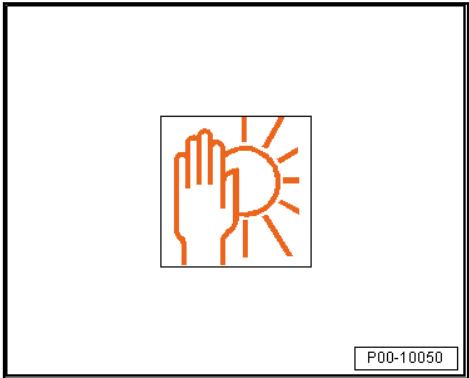
Dispose of the empty spray cans as recyclable material.

4.17.17 One-Part Blender

Storage

The guaranteed shelf life for only pre-filled spray cans is 60 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



VOC value

VOC value: 2004/42/IIB(e) (840) 750	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 750 g (26.5 oz)/l.
--	---

Special Instructions

Condition

- Keep filler area as small as possible.
  - Paint over the filler spot thoroughly with base paint. Apply the overlap spray applications.
  - Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- 

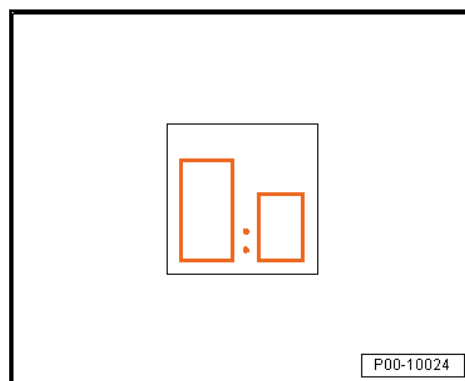
#### Application area:

The One-Part Blender LLS MAX 009 developed for easy and effective touch-up paints of two-part clear and top coats.

- ◆ Easy handling due to only using the spray can
  - ◆ Good coating
  - ◆ Blends well with the old paint.
  - ◆ High yield due to easy dosage
- 

#### Touch-up system for two-part HS clear coat

- Perform the settings, refer to the reference sheet Refer to ➡ ["4.9 Clear Coats", page 204](#) .



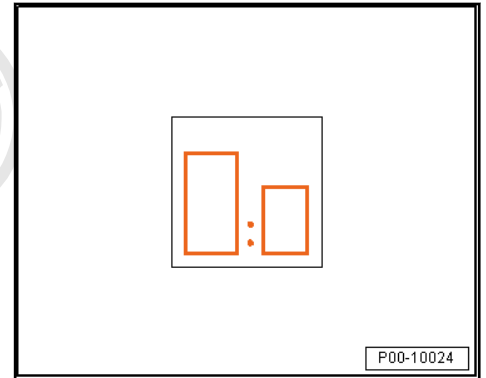
- Paint over the water-based base paint with clear coat that has been prepared for spraying. Apply the overlap spray applications.
- Apply the one-part blender from spray can, pure, onto the touch-up area inside the sanded areas.



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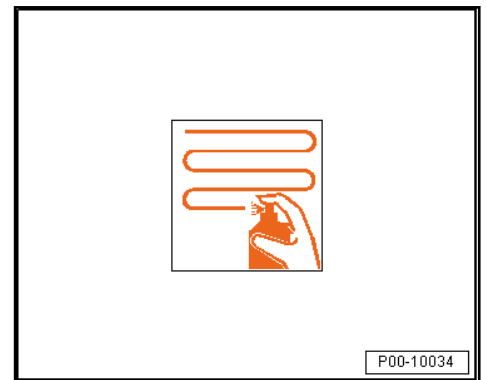
### Touch-up system for two-part HS top coats

- Perform the settings, refer to the reference sheet.
- ◆ Refer to ➔ [“4.5 Two-Part Top Coat”, page 133](#) .
- ◆ Refer to ➔ [“4.6 AquaPlus Solid Top Coats”, page 141](#) .
- ◆ Refer to ➔ [“4.7 AquaPremium, Top Coats”, page 167](#) .



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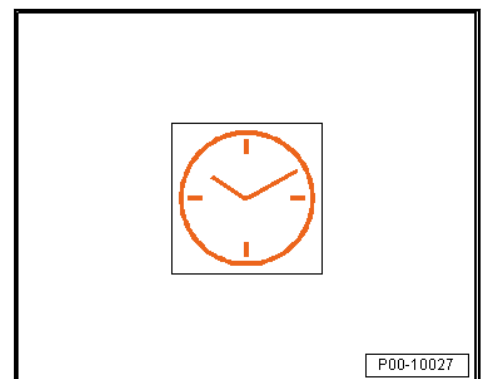
- Coat filler area thoroughly. Apply the overlap spray applications.
- Apply the one-part blender from spray can, pure, onto the touch-up area inside the sanded area.



### Drying

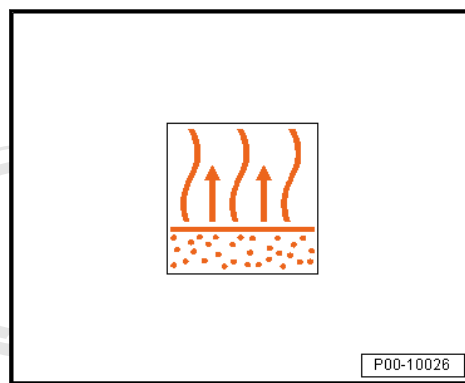
Polishing the touch-up paint areas at +20 °C (68 °F) room temperature.

Overnight



Flash-off time with forced drying:

5 to 10 minutes

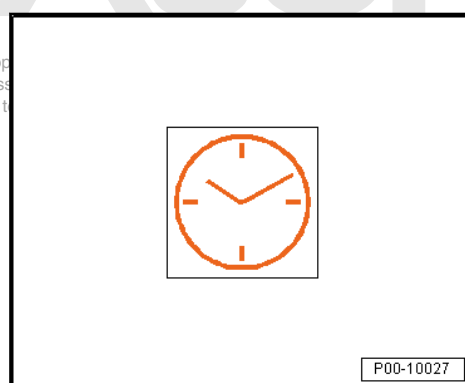


Air drying while object temperature is +60 °C:

30 minutes

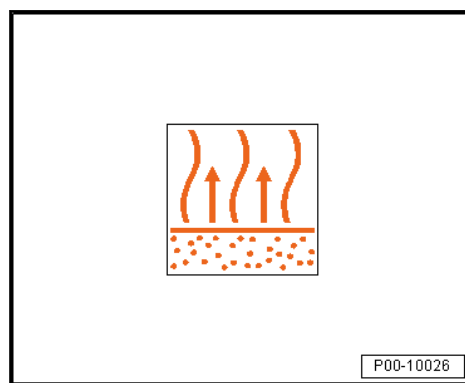
Polishing the touch-up paint areas at +20 °C (68 °F) room temperature.

After one hour



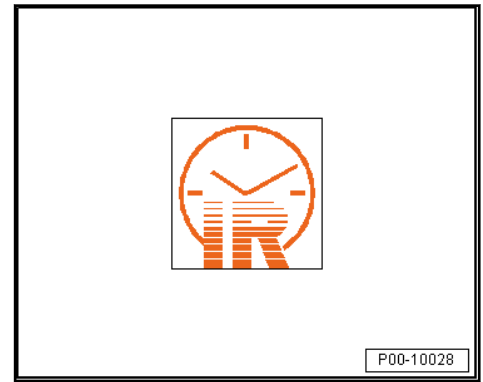
Infrared drying:

5 to 10 minutes



Short-wave radiator:

10 minutes

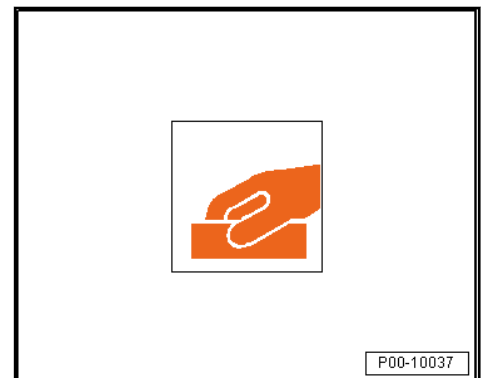


Polishing the touch-up paint areas at +20 °C (68 °F) room temperature.

After one hour

### Polishing

- Polish the touch-up zones with fine polishing paste, for example using Perfect-it™III Extra Fine Grinding Paste 80349, by hand or with a polishing machine, for example Perfect-it™III Polishing Foam 09550.
- Finally, treat the area with high-gloss sealant, for example 3M.



### Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

Dispose of the empty spray cans as recyclable material.

### 4.17.18 One-Part Wash Primer

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**NOTICE**

The vast amount of alloys and manufacturing processes for metals makes it necessary to preform a test on the respective underground.

Make sure that the pre-treatment suffices in providing perfect adhesion.

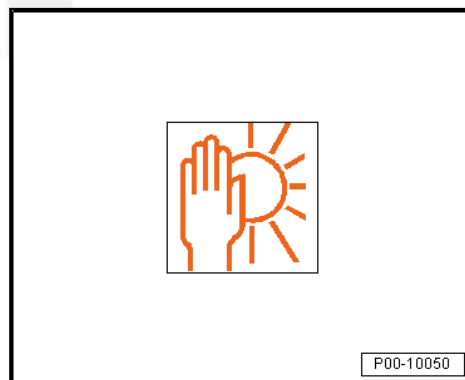
- Do not rework with polyester products.
- Do not rework with epoxy products.
- Do not apply to thermoplastic coatings.
- Do not directly rework with water-based base paint.
- Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- Shake briefly again before every spray application.

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**Storage**

The guaranteed shelf life for only pre-filled spray cans is 60 months.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).

**VOC value**

VOC value: 2004/42/IIB (e) (840) 690	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 690 g (24.3 oz)/l.
---	---

**Usability**

One-Part Wash Primer LLS MAX 106/107 can be used on:

Base surface	Suitability
Polyester filler	+ + +
Steel	+ + +
Galvanized steel	+ + +
Aluminum	+ + +

Base surface	Suitability
Glass fiber reinforced plastic (GFRP)	+ + +

One-Part Wash Primer LLS MAX 106/107 can be used as:

Roll	Suitability
Welding primer	+ + +
Primer	+ +
Filler	+ + +
Wet-on-wet processing	+

### Application area:

Copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for errors or omissions. The One-Part Wash Primer LLS MAX 106/107 are zinc chromate-free one-part products from the PVB system.

The One-Part Wash Primer LLS MAX 106/107 are zinc chromate-free one-part products from the PVB system.

It can be used as a wash primer for all conventional metallic base surfaces.

- ◆ Good corrosion protection properties
- ◆ Easy handling, one-part material
- ◆ Available in two shades of gray

### Suitable base surfaces

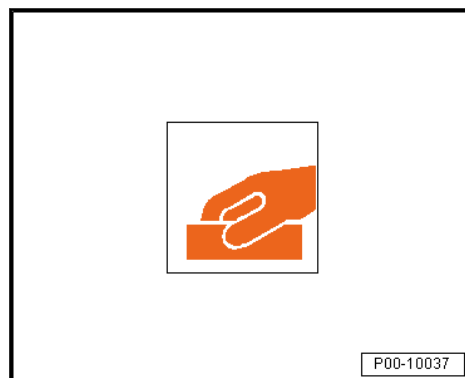
- ◆ Steel
- ◆ Cleaned and sanded, galvanized/electrolytically zinc sheet steel or soft aluminum
- ◆ Sanded factory primer
- ◆ Thoroughly sanded old primer or factory primer, excluding thermoplastic coating
- ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit

### Base, preparation

- Thoroughly clean the base surfaces beforehand using Silicone Remover, Long LVM 020 100 A5.



- Clean and sand the factory or older painting.
- Thoroughly remove any potential rust spots and sand any transitions to old paint.



- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



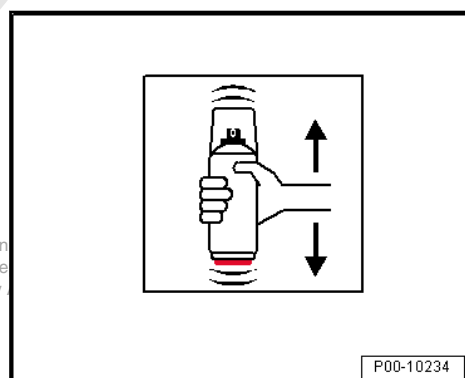
### Spray can

- Refer to ➤ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



### Spray application

- Perform one to three spray applications with a 5 to 10 minute intermediate flash-off time.

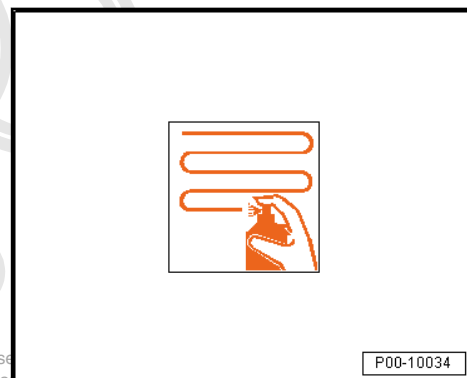
#### Condition

- Keep a spray distance of 20 to 25 cm.

- When using as wash primer:

#### Condition

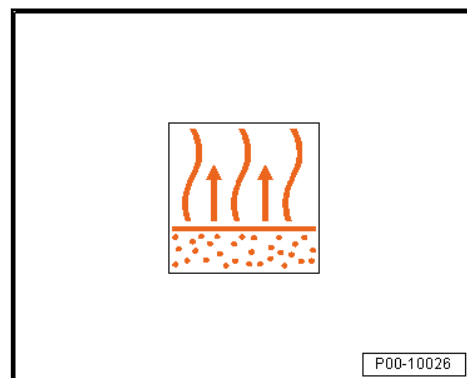
- One to two spray applications with a 5 to 10 minute intermediate flash-off time
- Keep a spray distance of 20 to 25 cm.
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



### Drying

Intermediate flash-off time between the spray applications:

5 to 10 minutes



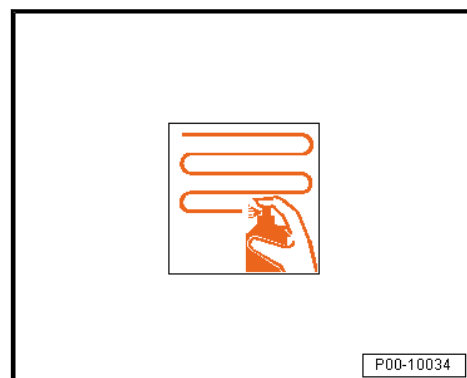
### Spray application

Insulating small, sanded-through areas, no larger than a diameter of 5.0 cm:

#### Condition

- Water-based base paint/two-part HS top coat may only be applied using wet-on-wet and intermediate sanding processes on the one-part wash primer if the sanded-through area is not larger than a diameter of 5.0 cm.
- Perform one to three spray applications.
- Adhere to a dry layer thickness of 10 - 40 µm

After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.

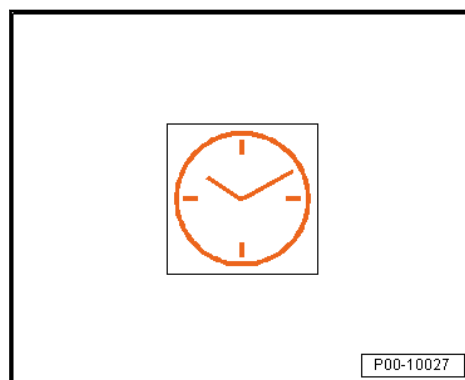


## Drying

Air dry at +20 °C (68 °F) room temperature:

Can be painted over with:

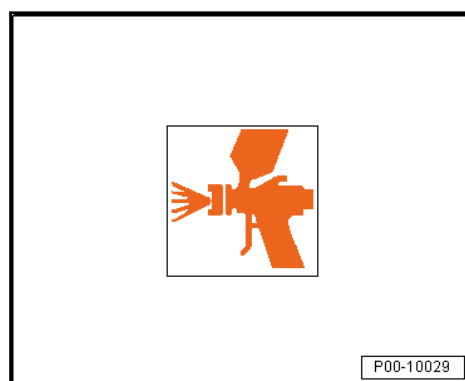
two-part acrylic filler	10 to 15 minutes
Two-part HS top coat for small sanded-through areas only	10 to 15 minutes
Water based paint, for small sanded-through areas only	20 to 30 minutes
Can be sanded	45 to 60 minutes



## Reworking

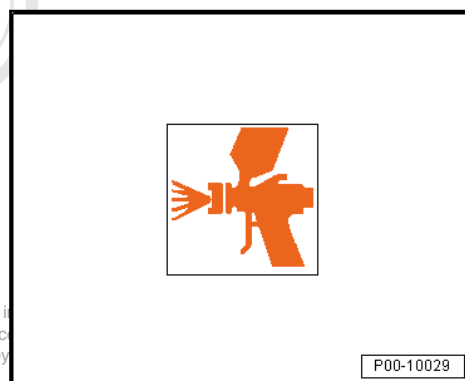
Using as a wash primer to be able to paint over with two-part HS filler.

Using as a wash primer to insulate small, sanded-through areas.



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Can be painted over with:

- ◆ Two-part HS top coat. For small sanded-through areas only
- ◆ Water-based base paint and two-part HS top coat. For small sanded-through areas only

## Grinding

- Wet-sand with P800 to 1000 grit wet sandpaper.



## Reworking

Can be painted over with:

- ◆ Refer to ➔ [“4.5.1 Two-Part HS Top Coat”, page 133](#) . For small sanded-through areas only
- ◆ Water-based base paint and two-part HS top coat. For small sanded-through areas only

## Work end and disposal

After ending the spray procedure, put the spray can upside-down and empty the valve.

Dispose of the empty spray cans as recyclable material.

## 4.17.19 Two-part wash primer



### NOTICE

The vast amount of alloys and manufacturing processes for metals makes it necessary to preform a test on the respective underground.

Make sure that the pre-treatment suffices in providing perfect adhesion.

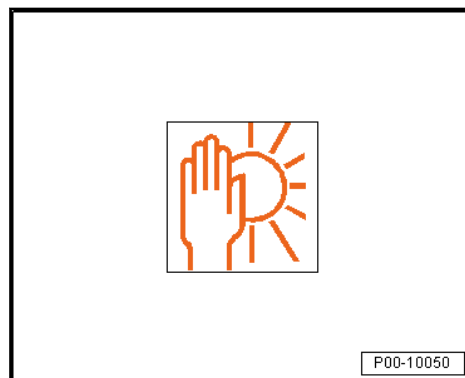
- Do not rework with polyester products.
- Do not rework with epoxy products.
- Do not rework with water-soluble products.
- Do not rework directly with water-based base paint or two-part top coat.
- Do not apply to thermoplastic coatings.
- Note the safety data sheets as well as the warnings on the label of the spray nozzle.
- Shake briefly again before every spray application.



## Storage

Guaranteed shelf life of 36 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



## VOC value

Delivery viscosity:	Pasty
Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB (e) (840) 703	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC value of this product in ready-to-use form is a maximum of 703 g (24.8 oz)/l.

## Product

The Two-Part Wash Primer LLS MAX 230 M1 is a zinc chromate-free, phenol-free acid-hardening two-part wash primer.

- ◆ Simple processing properties
- ◆ Passivating properties provide excellent protection against corrosion.
- ◆ For metallic base surfaces
- ◆ Short waiting period before reworking possibility
- ◆ Long curing time
- ◆ Application area: clever repair and small repairs

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## Suitable base surfaces

- ◆ Cleaned and sanded steel panels, galvanized/electrolytically zincd sheet steel or soft aluminum
- ◆ Sanded original factory primer
- ◆ Thoroughly sanded factory paint or old paint, excluding thermoplastic coatings.
- ◆ Surfaces prepared with two-part polyester products and then sanded with very fine grit

### Base, preparation

- Thoroughly clean the base surfaces beforehand using Silicone Remover, Long LVM 020 100 A5.



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- Clean and sand the factory or older painting.
- Thoroughly remove any potential rust spots and sand any transitions to old paint.

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- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



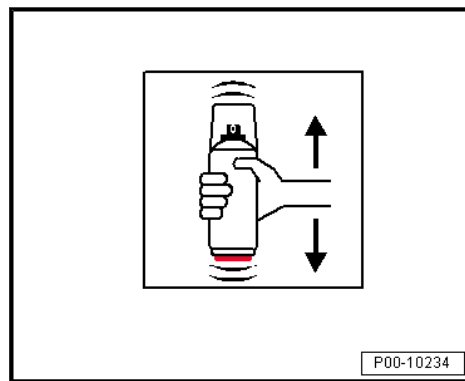
### Spray can

- Refer to ⇒ [“4.17.6 Two-Part Spray Can, Activating”, page 320](#).

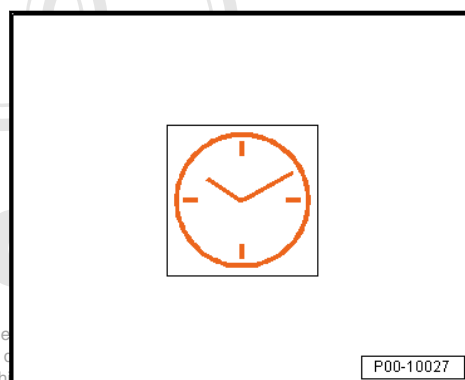
- Shake the spray can for two minutes before activation. This time starts when the mixing balls are audible for the first time.
- Spray test and check the product.

#### Condition

- During the spray test, check if the nozzle sprays neatly and evenly.
- For color spray cans, check the color.



## Curing Time



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Curing Time:

Four days at +20 °C (68 °F)

From the fifth day on the corrosion resistance will decline

## Spray application

- Apply two covering spray applications.
- Adhere to the intermediate flash-off time of five minutes between the single spray applications.

#### Condition

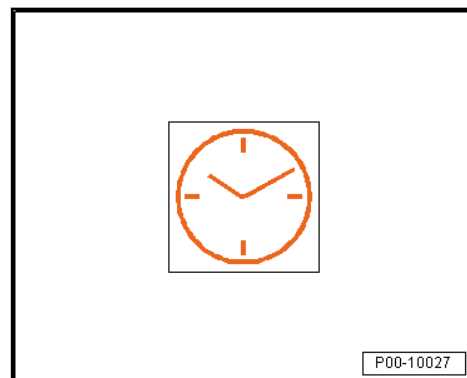
- Keep a spray distance of 15 to 20 cm.
- ◆ Recommended layer thickness: approximately 8 to 12 µm dry layer thickness
- After ending or when interrupting a spray application, empty the spray head while overhead to prevent any nozzle blockage.



## Drying

Air dry at +20 °C (68 °F) room temperature:

Can be recoated after 20 to 30 minutes

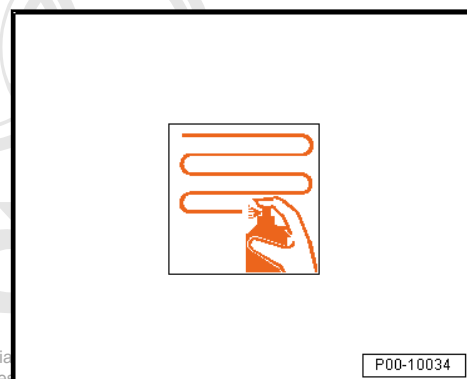


## Reworking

With two-part HS filler at +20 °C (68 °F) after flash-off time:

Condition

- Only use under the filler in three-layer structure.



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## 4.18 Additional Materials

⇒ ["4.18.1 Matting Component ALN 775 106", page 375](#)

⇒ ["4.18.2 Matting Component LVM 769 810 A2", page 383](#)

⇒ ["4.18.3 Structuring Component", page 386](#)

⇒ ["4.18.4 Touch-Up Additive for AquaPlus", page 392](#)

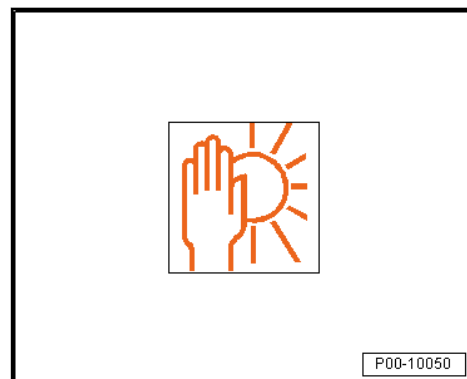
⇒ ["4.18.5 AquaPremium-System Additive", page 392](#)

### 4.18.1 Matting Component ALN 775 106

#### Storage

Guaranteed shelf life of 48 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).





## VOC value

Delivery viscosity:	Pasty
Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/ IIB(e) (840) 600	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC-value of this product in ready-to-use form is a maximum of 600 g (21.2 oz)/l.

## Product Description

With the two-part HS top coat, the Matting Component ALN 775 106 produces a matted top coat coating for plastic finishes.

This product is classified according to the regulation (EC) No. 1272/2008 (CLP).

## Suitable base surfaces

- ◆ Hardened, well-preserved and sanded old paint or factory paints
- ◆ Plastic parts treated with primer or filler

For information about plastic parts, refer to ⇒ The VW/Audi Coating System for Plastic Parts (Data Sheet 5.74)

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## Application Instructions

- ◆ The addition of Two-Part Elastic Additive ALZ 011 001 is omitted.
- ◆ The Matting Component ALN 775 106 is not suitable for matting clear coats.
- ◆ The Matting Component ALN 775 106 is thixotropic. The matting component will become liquid when stirred vigorously. If necessary, it is recommended to use an agitator or to manually shake the can. Furthermore the matting component should be mixed in the mixer 15 minutes before using.
- ◆ Adding the matting component can influence the covering capacity.
- ◆ Apart from color-dependent differences, the actual gloss level is influenced by different factors.

## Gloss Level Adjustment/Matting

Influencing Factors on the Gloss Level:

- ◆ Using different hardeners, thinners, application types, drying conditions and layer thicknesses lead to different gloss levels up to 20%.

higher gloss level	lower gloss level
Longer hardener	Shorter hardener
longer thinner	shorter thinner
higher processing viscosity	lower processing viscosity
higher dry layer thickness	lower dry layer thickness
shorter flash-off time	longer flash-off time
forced drying	air drying

### Base, preparation

- Carefully clean the base surfaces using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.

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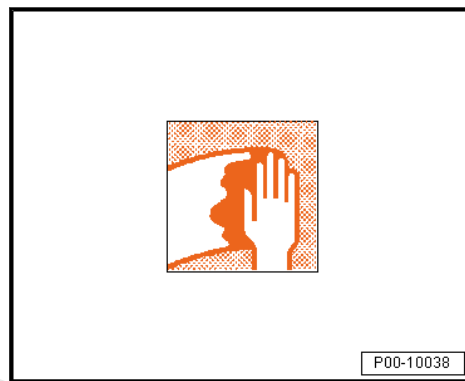


- Sand the base surfaces.





- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.



## Processing

Applicable products:

- ◆ Two-Part HS Top Coat
- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2
- ◆ See Refer to ⇒ [“4.10.3 Two-Part VHS Hardener”, page 251](#)

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## Matting table

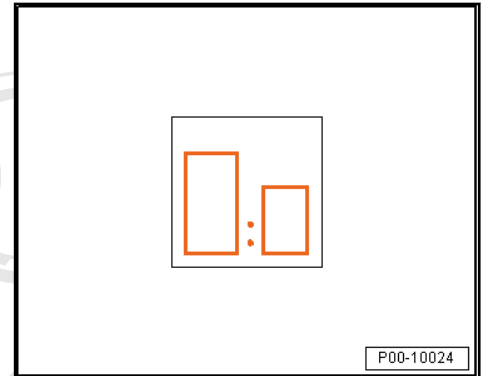
Mixing ratio in % by weight		Gloss Units GU according to DIN 67530
Matting Component ALN 775 106	Two-Part HS Top Coat	60° angle
10	90	85 to 95 GU*
20	80	80 to 90 GU*
30	70	75 to 90 GU*
40	60	60 to 90 GU*
50	50	25 to 65 GU*
* Depending on color; bright colors usually tend to lose more gloss than darker colors when adding Matting Component ALN 775 106. The gloss level is influenced by other factors. Refer to the gloss level influencing factor table.		

## Mixing ratio

Combining of the matting mixture:

Mixing ratio 4:1 by volume with:

- ◆ Two-Part VHS Hardener LHA 009 051 A2/LVM 009 051 A5, for small to medium-sized surfaces, at moderate temperatures
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3, for larger surfaces at moderate temperatures
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2, for large surfaces and high temperatures
- ◆ See Refer to ➤ ["4.10.3 Two-Part VHS Hardener", page 251](#) .



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## Thinner

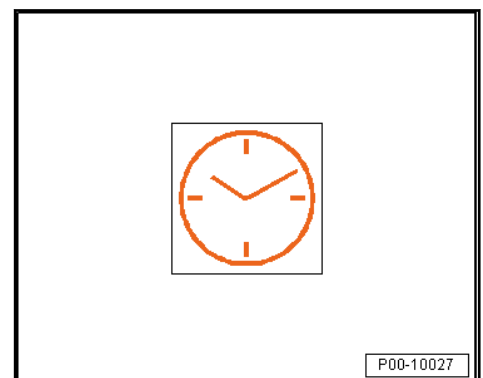
Dilutable with:

- ◆ Two-Part Thinner LVE 009 001 A5
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5
- ◆ Two-Part Thinner, Long LVM 009 300 A2

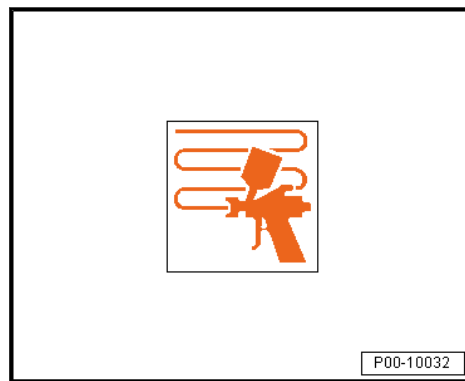


## Processing

Ready to spray in 60 to 90 minutes at +20 °C (68 °F).



- Perform the application type coat.

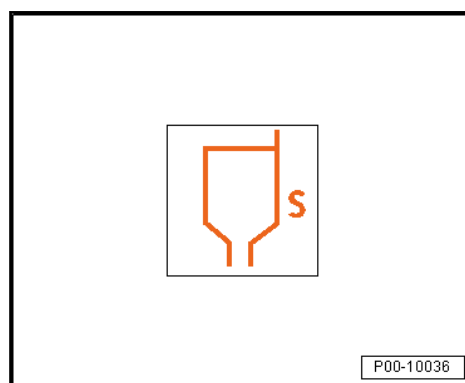


### Processing viscosity

- Mind the processing viscosity at +20 °C (68 °F) material temperature.

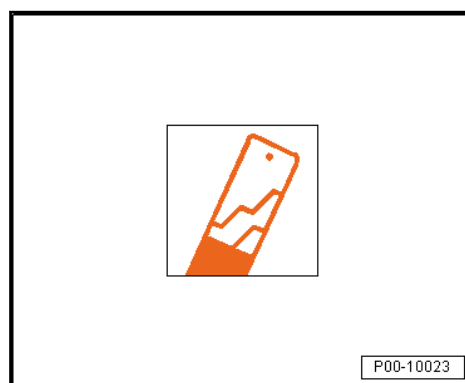
Processing viscosity “Compliant” and “HVLP” 18 to 20 seconds.

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### Thinner

Adding 15% thinner at +20 °C (68 °F) material temperature.

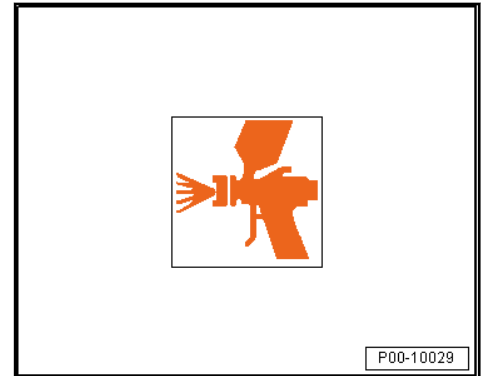


### Washer nozzle and spray pressure

- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4 mm	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	1.3 - 1.4 mm		0.7 bar (10.15 psi)

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### Spray application

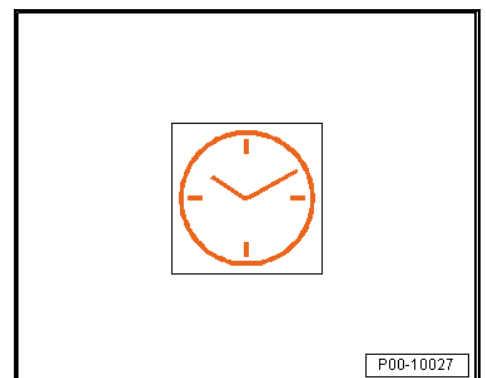
Two spray applications are required with flash-off time to get a dry layer thickness of between 50 and 60 µm.



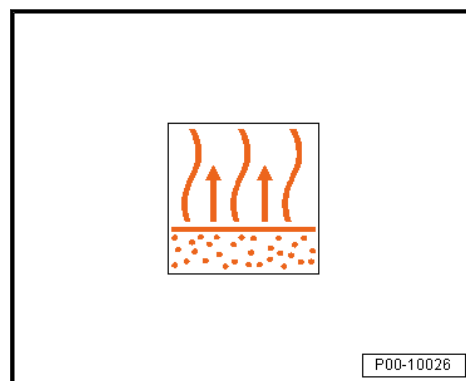
### Drying

Air dry at +20 °C (68 °F) room temperature:

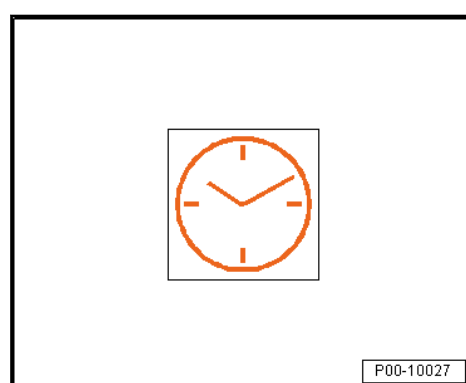
- ◆ Dust dry after 30 to 50 minutes
- ◆ Ready for assembly after five to six hours
- ◆ Dry: overnight



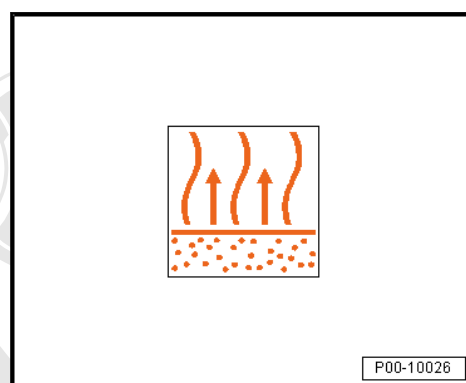
Final flash-off time with forced drying is a minimum of 5 to 10 minutes.



Forced dry at +60 °C (140 °F) object temperature for 30 to 40 minutes



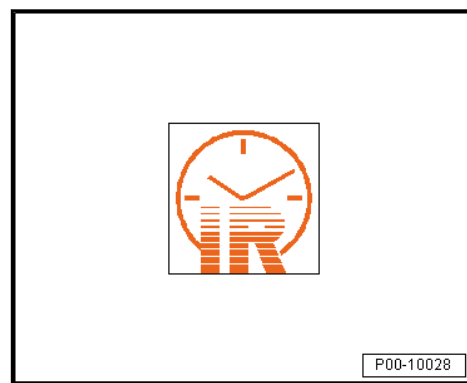
Final flash-off time for IR drying is a minimum of 5 to 10 minutes.



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IR drying with short-wave heaters for five minutes, at 50% power.

IR drying with short-wave heaters for ten minutes, at 100% power.

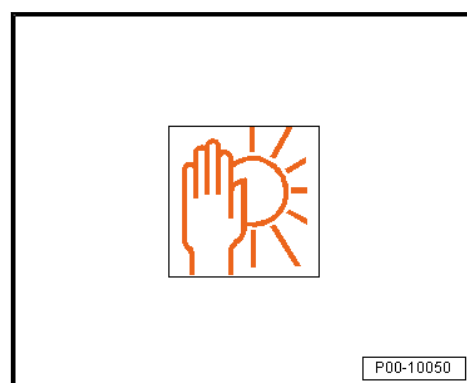


## 4.18.2 Matting Component LVM 769 810 A2

### Storage

Guaranteed shelf life of 48 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



### VOC value

Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB(e) (840) 600	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC-value of this product in ready-to-use form is a maximum of 600 g (21.2 oz)/l.

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### Product Description

With two-part HS clear coats and two-part HS top coat, the Matting Component LVM 769 810 A2 creates a matted top coat coating for metal and plastic finishes.

Areas of application include large surfaces/complete painting as well as small parts and attachment parts.

This product is classified according to the regulation (EC) No. 1272/2008 (CLP).

### Suitable base surfaces

- ◆ Hardened, well-preserved and sanded old paint or factory paints
- ◆ Primed and filled metal- and plastic parts

For information about plastic parts, refer to ⇒ The VW/Audi Coating System for Plastic Parts (Data Sheet 5.74) .

---

### Applicable products for processing

- ◆ Two-Part HS Clear Coat L2K 769 500 A5
  - ◆ Two-Part HS Vario Clear Coat L2K 769 K01 A5
  - ◆ Two-Part HS Optimum Plus Clear Coat LZK 769 K07 A5
  - ◆ Two-Part HS Brilliant Plus Clear Coat LZK 769 K05 A5
  - ◆ Two-Part HS Performance Clear Coat LZK 769 K06 A5
  - ◆ Two-Part HS Mixed Paint/Top Coat L2K 074/073...
  - ◆ Two-Part HS Hardener, Long LHA 009 047 A3
  - ◆ Two-Part HS Hardener, Extra Long LHA 009 048 A3
  - ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/LHA 009 052 A3
  - ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2
  - ◆ See Refer to ⇒ ["4.10 Hardener", page 247](#) .
  - ◆ Two-Part Thinner LVE 009 001 A5
  - ◆ Two-Part Thinner, Long LVM 009 300 A2
  - ◆ Two-Part Thinner, Special LVM 009 200 A2/LVM 009 200 A5
  - ◆ Clear Coat Additive LVM 007 000 A2
- 

### Application Instructions

- ◆ The addition of Two-Part Elastic Additive ALZ 011 001 is omitted.
- ◆ Stir or shake the Matting Component LVM 769 810 A2 in the can well.
- ◆ With the two-part HS clear coat and two-part HS top coat, mix the Matting Component LVM 769 810 A2 according to specification and infuse with hardener and thinner just before processing. The processing of the ready-to spray mixture should immediately follow. If the mixture remains in the mixing or spray gun receptacle for a longer period of time, 15 minutes, it should be stirred again before continuing to use due to separation.
- ◆ Adding the matting component can influence the covering capacity.
- ◆ It is necessary to test the respective mixture on sheet metal to achieve the appropriate gloss level for the vehicle. Gloss level measurements, with 60° angle, at adjacent parts can also be helpful.

- ◆ A touch-up/repair of the matted clear coat within the surface (for example, side part or clever repair) is not possible.
- ◆ Dust inclusions cannot be polished out, so therefore ensure that absolute cleanliness is maintained during the entire painting process.
- ◆ Apart from color-dependent differences, the actual gloss level is influenced by different factors.

## Gloss Level Adjustment/Matting

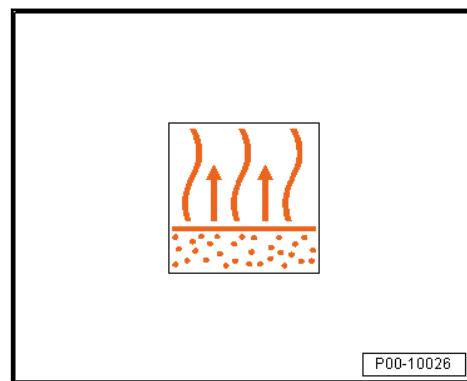
Influencing Factors on the Gloss Level:

- ◆ Using different hardeners, thinners, application types, drying conditions and layer thicknesses lead to different gloss levels up to 20%.

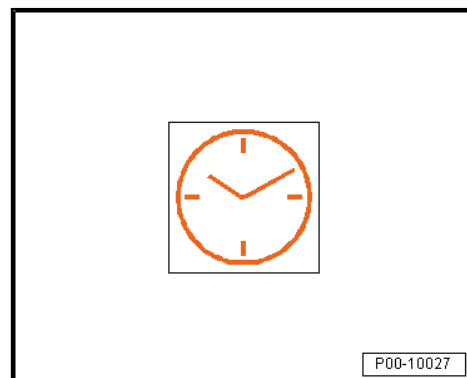
higher gloss level	lower gloss level
Shorter hardener	Longer hardener
shorter thinner	longer thinner
higher processing viscosity	lower processing viscosity
higher dry layer thickness	lower dry layer thickness
shorter flash-off time	longer flash-off time
forced drying	air drying

## Drying

- Adhere to the final flash-off time with forced drying a minimum of 15 to 20 minutes.



- Adhere to the forced drying at +60 to 65 °C (140 to 149 °F) object temperature for 45 minutes.

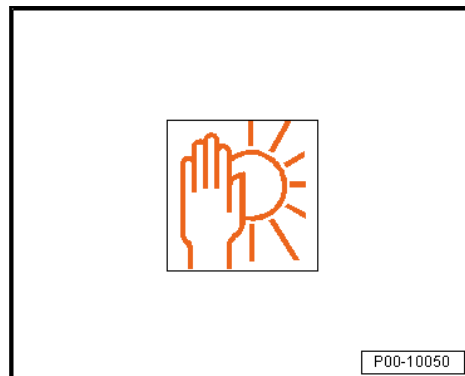


### 4.18.3 Structuring Component

#### Storage

Guaranteed shelf life of 24 months from production date.

Use no later than the date indicated on the label and store in the closed original container at +20 °C (68 °F).



#### VOC value

Delivery Viscosity	Thixotropic
Flashpoint:	above +23 °C (73.4 °F)
VOC value: 2004/42/IIB(e) (840) 600	The EU limit for this product (product category IIB.e) in ready-to-use form is a maximum of 840 g (29.6 oz)/l volatile organic compounds. The VOC-value of this product in ready-to-use form is a maximum of 600 g (21.2 oz)/l.

#### Product Description

- ◆ The Structuring Component, Fine ALN 775 108 is a component for the two-part HS top coat and changes it into a textured paint.
- ◆ The top coat can be used for plastic finishes on vehicles.

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#### Suitable base surfaces

- ◆ Hardened, well-preserved and sanded old paint or factory paints
- ◆ Primed and filled metal- and plastic parts

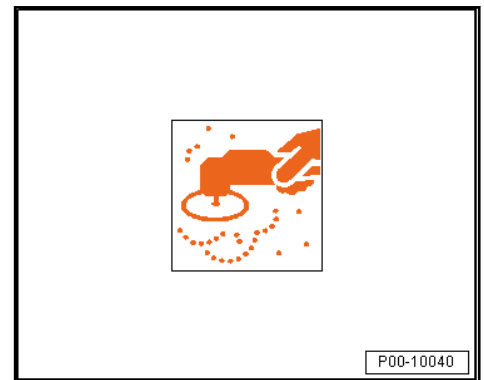
For information about plastic parts, refer to ➔ The VW/Audi Coating System for Plastic Parts (Data Sheet 5.74) .

**Base, preparation**

- Carefully clean the base surfaces using Silicone Remover LVM 020 000 A5 or Silicone Remover, Long LVM 020 100 A5.



- Perform dry sanding using a rotary sander, with P400 to P500 dry sanding paper and dust extraction.



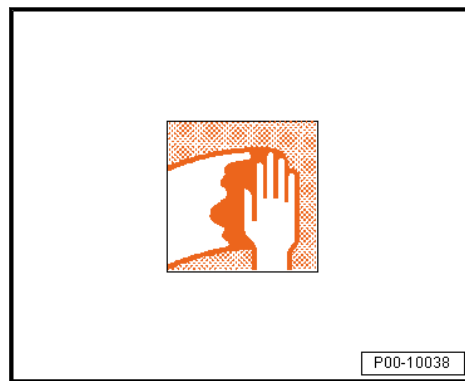
- Or wet-sand with P800 grit wet sandpaper.



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- Clean base surfaces with suitable cleaning solution so that all contamination or residue is removed.

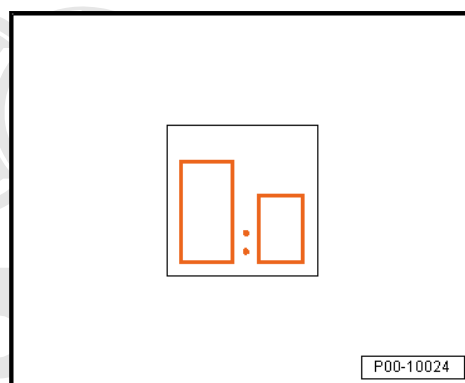


### Mixing ratio

Mixing ratio 1:1 by volume with two-part HS top coat.

Afterwards combine mixture 4:1 by volume with a suitable two-part VHS hardener.

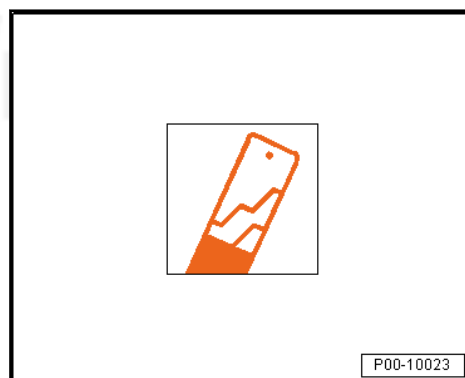
- ◆ See Refer to ➔ [“4.10.3 Two-Part VHS Hardener”, page 251](#) .



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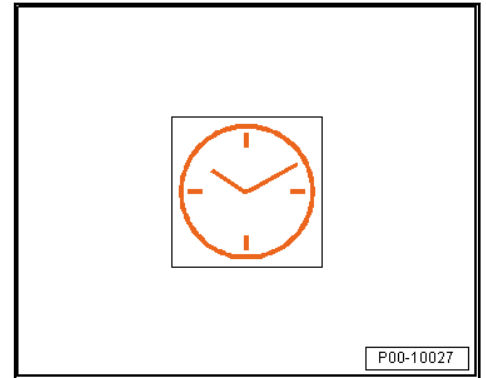
Dilutable with:

- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5
- ◆ Two-Part Thinner, Long LVM 009 300 A2

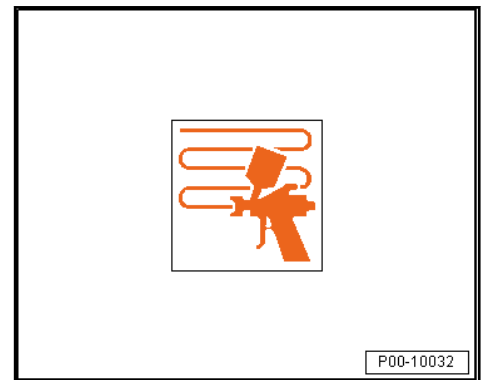


## Processing

Ready to spray in 90 to 100 minutes at +20 °C (68 °F).



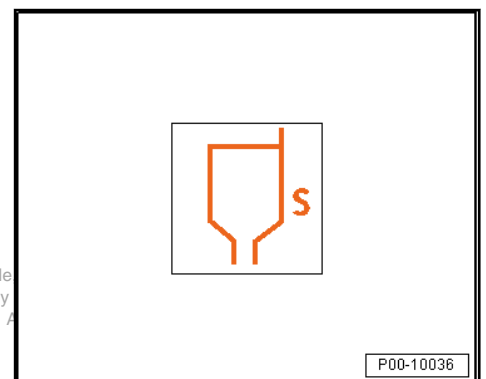
- Perform the application type coat.



## Processing viscosity

- Note the processing viscosity 4 mm for +20 °C (68 °F) material temperature, German Industry Standardization 53211.

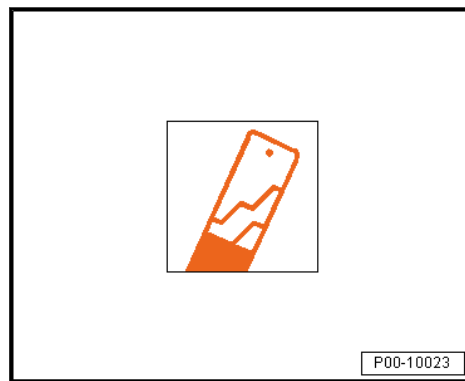
Processing viscosity at +20 °C (68 °F) material temperature is the mixing viscosity for “Compliant” and “HVLP”.



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Adding 15% thinner at +20 °C (68 °F) material temperature.

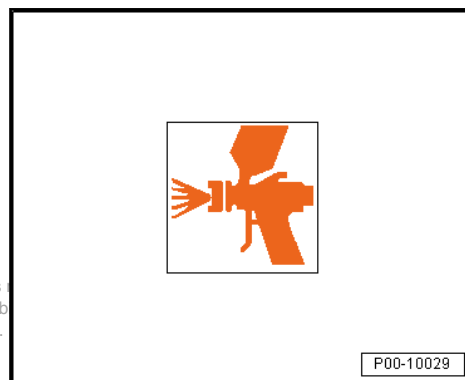


### Washer nozzle and spray pressure

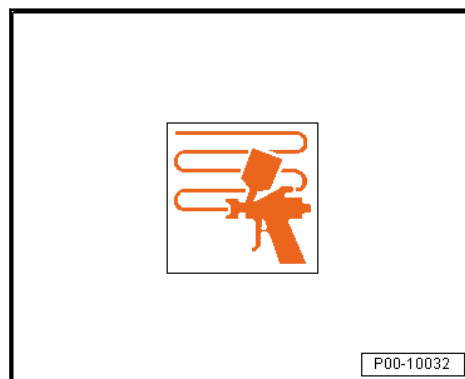
- Adjust washer nozzle and spray pressure according to the manufacturer information.

	Spray nozzle	Spraying pressure	Atomizing pressure
Compliant	1.3 - 1.4 mm	2.0 to 2.5 bar (29.01 to 36.2 6 psi)	
HVLP	1.3 - 1.5 mm		0.7 bar (10.15 psi)

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- Perform two spray applications with a flash-off time to get a dry layer thickness of between 50 and 60 µm.



### Application Instructions

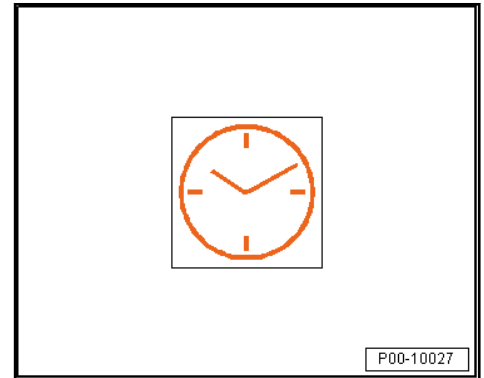
- ◆ The addition of Two-Part Elastic Additive ALZ 011 001 is omitted.
- ◆ Structuring Component, Fine ALN 775 108 is only suitable for use on attachments, for example, bumpers, spoilers.
- ◆ Various effects can be created using different spraying techniques and layer thicknesses.

- ◆ Structuring Component, Fine ALN 775 108 is thixotropically mixed, which means it becomes fluid when stirred.

## Drying

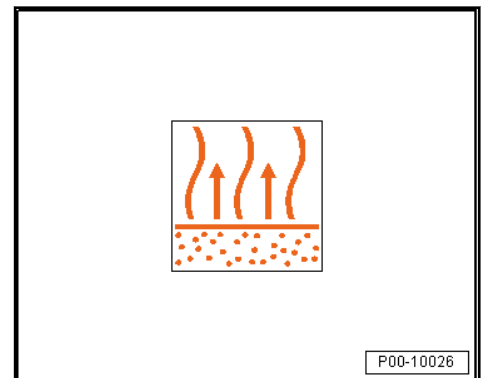
Air dry at +20 °C (68 °F) room temperature:

- ◆ Dust dry after 30 to 50 minutes
- ◆ Ready for assembly after five to six hours
- ◆ Dry: overnight

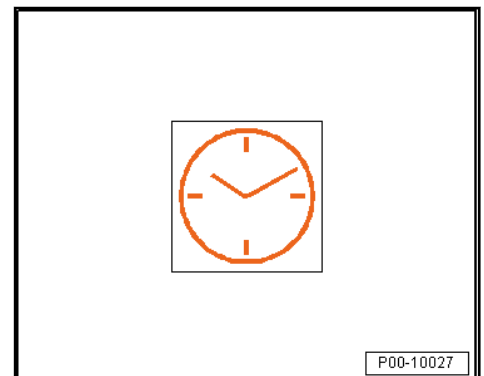


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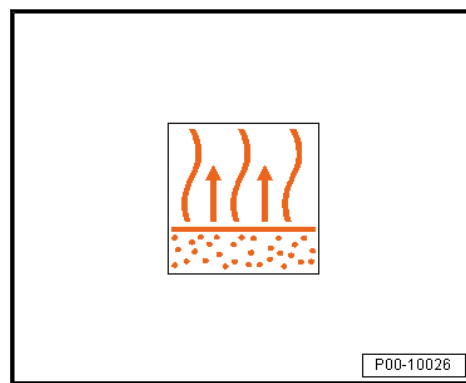
Final flash-off time with forced drying is a minimum of 5 to 10 minutes.



Forced dry at +60 °C (140 °F) object temperature for 30 to 40 minutes



Final flash-off time for IR drying is five minutes.



IR drying with short-wave radiator for 10 to 15 minutes.

IR drying with medium-wave radiator for 15 to 20 minutes.



#### 4.18.4 Touch-Up Additive for AquaPlus

For application and processing information, refer to ["4.6.3 AquaPlus Touch-Up System", page 162](#) .

#### 4.18.5 AquaPremium-System Additive

##### Definition

- ◆ Additive for AquaPremium LVM 035 200 A2/A3
- ◆ Additive for AquaPremium LVM 035 300 A1
- ◆ Additive for AquaPremium LVM 035 300 A1/A3/Additive for AquaPremium LVM 035 301 A3

For AquaPremium additive processing and application information, refer to [Refer to "4.7.2 AquaPremium Touch-Up System", page 180](#) .



Audi

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## 5 Repair Paintwork

⇒ ["5.1 Paint Finish, Decorative Strips and Films", page 393](#)

⇒ ["5.2 Tips and Tricks", page 397](#)

### 5.1 Paint Finish, Decorative Strips and Films

⇒ ["5.1.1 Materials, Information", page 393](#)

⇒ ["5.1.2 Decorative Strips and Foils, Application", page 393](#)

⇒ ["5.1.3 Adhesion, Procedure", page 394](#)

#### 5.1.1 Materials, Information

##### Condition

- Decorative foils are available as pre-cut sections or as bulk film in rolls. Foils must be stored dry at approximately 15 °C (59 °F). Big fluctuations in temperature, frost or direct heat exposure impair later processing and thus must be avoided!

All original decorative films are self-adhesive. To transport, store and affix them accurately, the millimeter-thick decorative foil is located between a thick protective layer and thinner application paper, called sandwich packing. Both papers are removed during installation.

##### Layers:

The protective paper is a thick paper with a manufacturer code that is usually waxed on the side facing the decorative foil, for example "Scotchcal 3M". When rolled together, this paper must be on the inside.

##### 1. Layer: self-adhesive decorative foil

- ◆ This is a 0.7 mm thin PVC film which can vary in color, with a non-hardening acrylic adhesive.

##### 2. Layer: Application paper

- ◆ The application paper is relatively thin, but tear-resistant and light-colored. It allows the foil lying underneath to be seen. If working with cuts, the part number is on them. When rolled together, this side must be on the outside.

##### 3. Layer: Application paper

- ◆ The application paper is relatively thin, but tear-resistant and light-colored. It allows the film lying underneath to be seen. If working with cuts, the part number is on them. When rolled together, this side must be on the outside.

#### 5.1.2 Decorative Strips and Foils, Application

**Do not apply foil onto newly painted vehicles.**

##### Condition

- Fresh paint should dry for approximately three weeks at +20 °C (68 °F), before applying the foil.

##### Information on adhering the foil

After having applied the film to the entire surface, firmly but carefully press it on with the blade once more and pull off the application paper at a 180° angle.

Visible air bubbles should be "popped open" at their edges with a fine needle. Squeeze out the air by going over them with the scraper.

### 5.1.3 Adhesion, Procedure

#### Preparation

- ◆ The surface to which the strip is to be affixed must be absolutely smooth and free of oil and grease. Cleaning with silicone remover.
- ◆ The work area and the decorative foil or the decorative stripe must be at a temperature of +15 - 25 °C (59 - 77 °F).
- ◆ The adhesive film must have reached the current room temperature before processing.
- ◆ For larger bonds, the vehicle should be raised on a hydraulic lifting platform.

#### Procedure:

- ◆ "Dry" adhesion for "Experts": After removing the protective paper, the foil is "worked on with the scraper" to fit immediately after applying it.
- ◆ "Wet" adhesion for inexperienced or for large surfaces: the surface and the film with water that was mixed with dish washing liquid. On this film, which prevents immediate adhesion, the film can be precisely floated to the proper position in order to press it on with a blade. The thin film of water underneath is then squeezed out so that there is no loss of adhesion.

#### Required tools and equipment for affixing the decorative film:

- ◆ Felt scraper
- ◆ Plastic scraper (for thick and dark films)
- ◆ Sharp, straight paper scissors, approximately 80 mm in length
- ◆ Pin with glass head
- ◆ Lint-free cloth
- ◆ Sponge
- ◆ Dish washing detergent
- ◆ Plastic bucket
- ◆ Silicone Remover

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#### Procedure

The described progress has been tried and tested. It makes no difference whether the application is "dry" or "wet" or whether working with ready-made cut sections or bulk material on rolls.

Cut the foil to size or hold the sections of a complete set with the protective paper against the areas on the body and then attach them with tape.

#### Condition

- When working with larger areas, it is helpful to make control marks. Adhesive strips attached to the body are connected to straight lines that extend onto the overlying application paper.

Re-check that all parts are properly positioned and cut.

- ◆ Regulate the working height of the hydraulic lifting platform
- ◆ Optimize the lighting conditions by providing additional lamps
- ◆ Check all tools and equipment. These must be within reach at all times
- ◆ Work together with a second person for large applications

- 
- 1. Pull off the protective paper from the entire surface on one foil end and, with the help of the application paper, position precisely and press on with the blade.
  - 2. Using the marks as a guide, gradually pull off the protective paper and, at the same time, press on the foil with the blade through the application paper, always pressing from the inside to the outside.
  - 3. Should there still be larger creases or other irregularities, the foil can still be pulled off again at the application paper, re-positioned and pressed on again with the blade!
- 

**If the foil is quite long, proceed as follows when pulling off the protective paper and pressing on with the blade for the first time:**

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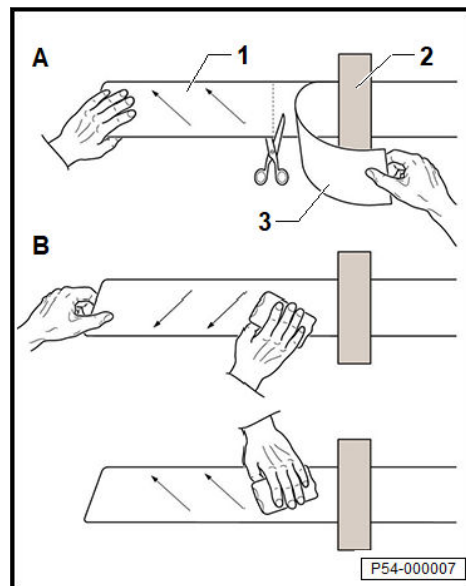
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#### **Continuation for all vehicles**

- 4. Attach the tape to the middle of the foil strip, pull off the protective paper up to this point and then cut it off.
  - 5. Attach the foil strips to the correct dimensions using the application paper and the control marks.
  - 6. Taking the plastic blade, press the foil through the application paper using firm, overlapping strokes.
-

### Example of wet adhesion

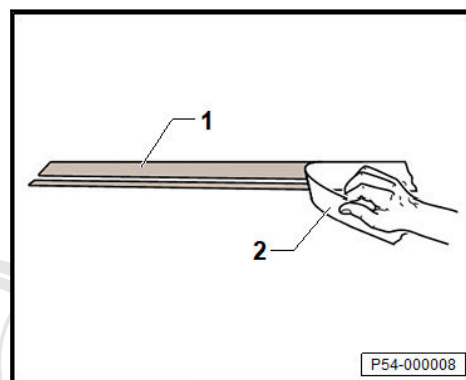
- 1 - Protective paper
- 2 - Adhesive tape
- 3 - Decorative Foil with Application Paper



Wet application is helpful in problem cases.

- Spray soapy water onto the body.
- Bring the foil into the correct position.
- Squeeze out the water underneath the foil with the plastic blade.

- Repeat the work process on the other side of the adhesive strip.
- Remove the protective paper -2- from the decorative film -1-.



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## 5.2 Tips and Tricks

⇒ [“5.2.1 Painting at Exterior Temperatures above 25 °C \(77 °F\)”, page 397](#)

⇒ [“5.2.2 Color shading deviations at high outdoor temperatures”, page 398](#)

⇒ [“5.2.3 Matte Painted Components, Washing and Cleaning”, page 398](#)

⇒ [“5.2.4 Using cold spray for polishing work”, page 398](#)

⇒ [“5.2.5 Matte Painted Vehicles, Care”, page 399](#)

### 5.2.1 Painting at Exterior Temperatures above 25 °C (77 °F)

When outdoor temperatures are high, processing becomes more difficult. By using two-part fillers with hardeners and thinners that are too short, blisters, excessively thick layers, as well as sand-like surfaces can be produced.

The same applies to the use of two-part clear lacquers with hardeners and thinners that are too short.

Processing water-soluble products is extensively influenced through temperature and humidity.

This is why it is very important to properly choose the individual materials.

Pay attention to the reference sheet of the respective product. not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the use of the products described in this document.  
Using two-part HS vario filler, gray and two-part HS premium filler:

- ◆ Two-Part HS Hardener, Long LHA 009 047 A3
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/A3
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5

When using two-part HS clear coat, recommendations:

- ◆ Two-Part HS Hardener, Long LHA 009 047 A3
- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/A3
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5

When using two-part HS Vario clear coat, recommendations:

- ◆ Two-Part HS Hardener, Extra Long LHA 009 048 A3
- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5

When using two-part HS Brilliant Plus clear coat, recommendations:

- ◆ Two-Part VHS Hardener, Long LHA 009 052 A2/A3
- ◆ Two-Part Thinner, Special LVM 009 200 A2/A5

When using two-part HS Optimum Plus clear coat, recommendations:

- ◆ Two-Part VHS Hardener, Extra Long LHA 009 053 A2

Refer to the reference sheets for choosing the optimal hardeners:

- ◆ Refer to ⇒ [“4.10.2 Two-Part HS Hardener”, page 248](#) .
- ◆ Refer to ⇒ [“4.10.3 Two-Part VHS Hardener”, page 251](#) .



## 5.2.2 Color shading deviations at high outdoor temperatures

On hot summer days it is not unusual for an experienced painter to be confronted with an inexplicable color shading problem. The color shade measured on the vehicle and the mixed color shade vary greatly from the original paint finish.

Reason: On hot days a car body can heat up to +80 °C (176 °F). This can influence the color shades so significantly that a color shade measurement at these high temperatures would produce an erroneous result. When the car body cools, the mixed paint applied at a temperature of approximately +25 °C (77 °F) would no longer match the original color shade. This is particularly noticeable with red color shades.

The color shade should always be determined on the body at roughly the same temperature at which later processing will take place. The optimum object temperature is between +15 and 25 °C (59 and 77 °F).

## 5.2.3 Matte Painted Components, Washing and Cleaning

### Clean vehicle components painted matte

Matte painted vehicle components may not be treated with polishes or hard waxes, because this may result in irreversible optical damage to the surface.

### Using washing programs with wax conservation

Never use such programs. They might destroy the matte-paint effect.

### Approved cleaners

Generally, only use cleaners free of solid matter or abrasive materials, like cleaning shampoos or insect removers.

### Do not use sponges

Never use insect sponges, rough kitchen sponges or similar. There is a risk of damaging the surface.

## 5.2.4 Using cold spray for polishing work

### Processing

#### Condition

- When using the polishing machine, ensure that the polishing procedure does not last longer than approximately 5 - 10 seconds to avoid heating the paint. Should this not produce the desired results, the paint must be re-treated within the specified drying time.

After drying there might be difficulties when polishing touched-up areas and freshly painted plastic parts due to paint which has not yet dried completely. This affects featheredge areas for touch-up paintwork. Proceed as follows:

- 
- Spray cold spray onto the featheredge area.
  - Polish the featheredge area with a polishing machine or by hand.

- Repeat the polishing procedure with cold spray until a flawless featheredge surface is created.

## Reworking

If it is mainly soft plastic parts, for which Two-Part Elastic Additive ALZ 011 001 was used and smaller painting errors need to be fixed afterward, then the following work processes must be kept in mind:

- Wet-sand the paint defects with P2000 - P2500 sandpaper. Avoid excessive sanding.
- Spray cold spray onto the sanding area and neighboring areas.
- Polish the sanding area by hand.
- Repeat the procedure until the desired result are produced.

## 5.2.5 Matte Painted Vehicles, Care

### Condition

- Matte-painted vehicle need special care due to their paint qualities.

### Environmental note

Only wash the vehicle in washing areas intended for washing vehicles.

This will avoid water contaminated with oil getting into the wastewater.

In some area, washing your vehicle outside of these designated spots may be prohibited.

### Getting rid of stubborn dirt.

If possible, remove insects or bird droppings immediately, by soaking with water and a special cleaner for matte paint.

Tar splashes on the paint surface may be removed with commercially available tar remover.

Residue must not be removed by rubbing.

Preferably remove tree resin/sap and rust particles with a special cleaner for matte paint and with cleaning putty. If doing so, work without applying pressure and glide the putty above the affected areas.

Wash off any fuel residue with lots of water.

### Automatic washer systems

Only use roll-over vehicle washing systems which work with cloth. Do not use brush vehicle washing systems.

Do not use washing programs that use wax or chemical drying agents.

### Washing with a high-pressure washer

Pay attention to the instructions of the high-pressure washer when washing the vehicle with it, especially the pressure and nozzle distance to the object.



Keep sufficient distance to soft materials like rubber hoses or sealing materials, as well as to the Sensors and Parking Aid .

Never use round spraying nozzles or a dirt blaster nozzle.

### **Washing by hand**

To avoid damaging the paint, first remove all dust and coarse material.

It is best to use specialty cleaners to get rid of insect residue, grease splashes and fingerprints.

Apply the cleaner using a microfiber cloth.

Do not use excessive force to avoid damaging the paint.

Clean off the vehicle with a sufficient amount of water.

Clean the vehicle from the top down using a neutral shampoo and a soft microfiber cloth.

Thoroughly wash off the microfiber cloth in short periods of time.

Clean the wheels and sills last. Use a clean sponge to do this.

Again, clean off the vehicle with a sufficient amount of water.

Water residue can be removed with a leather cloth.

### **Quick cleaning from grease and fingerprints**

Spray matte paint finish spray onto the affected areas and wipe off using a soft microfiber cloth.

### **Matte paint surface protection**

Apply a specialty wax developed for matte paint onto the cleaned vehicle using a soft sponge puck.

Remove excess wax using a microfiber cloth.

For tested matte care products and information on handling, refer to "<https://www.schollconcepts.com>".



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## 6 Corrosion and Corrosion Protection

⇒ ["6.1 Corrosion, Removal", page 401](#)

### 6.1 Corrosion, Removal

#### General information

For uncoated areas, there is danger of corrosion. This also applies if stone impacts, cracks or scratches damaged the protective paint coat on the body. Unfavorable weather conditions and lacking care will increase the decomposition process rate.

If this damage is not repaired in a timely manner, it will lead to rust underneath the paint and imminent danger of rusting through the material from the outside to the inside.

To avoid rusting through at the area of the repair, rust areas must always be removed completely before a new paint structure is applied.

#### Suitable equipment

- ◆ Remove smaller stone impacts with a touch-up applicator as early as possible.
- ◆ Beforehand, isolate deeper stone impacts, reaching to the blank metal, with a thin brush application of the One-Part Wash Primer LVM 044 007/171.
- ◆ Use suitable sanding equipment, for example a radial bristle disc, to remove smaller paint bubbles or starting corrosion.
- ◆ Use more effective equipment if corrosion has already advanced to a worse state. These include Sandblasters or Pneumatic Brush Grinder Set - VAS 6446- .

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# Cautions & Warnings

**Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.**

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Audi retailer or other qualified shop. We especially urge you to consult an authorized Audi retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Audi.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Audi is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Audi retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the Audi Factory Approved Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.

# Cautions & Warnings

- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.
- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly, do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Audi specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
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Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.

# Cautions & Warnings

- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Audi Service technicians should test, disassemble or service the airbag system.
- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Audi Service technicians using the Audi Factory Approved Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

**I have read and I understand these Cautions and Warnings.**